

CFD-445

SERVICE MANUAL

US Model
Canadian Model



COMPACT
disc
DIGITAL AUDIO

MEGA BASS

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS (US MODEL)

POWER OUTPUT AND TOTAL HARMONIC DISTORTION

With 3.2-ohm loads, both channels driven from 150-15,000 Hz; rated 2 W per channel-minimum RMS power, with no more than 10 % total harmonic distortion in AC operation.

Other Specifications

CD player section

System	Compact disc digital audio system
Laser diode properties	Material: GaAlAs Wave length: 780 nm Emission duration: Continuous Laser output: Less than 44.6 μ W (This output is the value measured at a distance of about 200 mm from the objective lens surface on the optical pick-up block.)
Spindle speed	200 r/min (rpm) to 500 r/min (rpm) (CLV)
Error correction	Sony Refined Super Strategy Cross Interleave Reed Solomon Code
Number of channels	2
Frequency response	20-20,000 Hz $\pm$ 1 dB
Wow and flutter	Below measurable limit

Radio section

Frequency range	FM: 87.6-108 MHz AM: 530-1,710 kHz
Antennas	FM: Telescopic antenna AM: Built-in ferrite bar antenna

Cassette-corder section

Recording system	4-track 2-channel stereo
Frequency response	TYPE I (normal) cassette: 80-10,000 Hz

Model Name Using Similar Mechanism	CD Section	CFD-440
	Tape Section	NEW
Optical Device Name		KSM-2101BAN
Tape Transport Mechanism Type		MF-445-102

General

Speaker	Woofer: 10 cm dia., 3.2 ohms cone type Tweeter: 2 cm		
Inputs	Mixing microphone input jack (minijack): Sensitivity 2.5 mV For low impedance microphone		
Outputs	Headphones jack (stereo minijack) For 16-68 ohms impedance headphones		
Power output (except US model)	2.3 W + 2.3 W (at 3.2 ohms, 10% harmonic in DC operation)		
Power requirements	120 V AC, 60 Hz DC 9 V, 6 size D (R20) batteries		
Power consumption	AC 17 W		
Battery life	For CD radio cassette-corder:		
	FM recording	Tape playback	CD playback
Sony SUM-1 (NS)	approx. 11 h	approx. 8 h	approx. 5 h
Sony Alkaline AM1	approx. 17 h	approx. 12 h	approx. 7 h
Dimensions	Approx. 588 $\times$ 231 $\times$ 207 mm (w/h/d) (23 $\frac{1}{4}$ $\times$ 9 $\frac{1}{8}$ $\times$ 8 $\frac{1}{4}$ in.) incl. projecting parts		
Mass	7.2 kg (15 lb 14 oz) (incl. batteries)		
Supplied accessories	AC power cord (1)		

Design and specifications subject to change without notice.

CD RADIO CASSETTE-CORDER
SONY[®]

SAFETY CHECK-OUT (US MODEL)

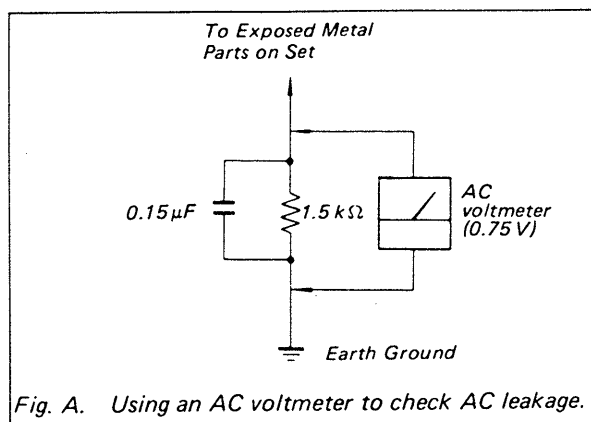
After correcting the original service problem, perform the following safety check before releasing the set to the customer:

Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)



SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK OR DOTTED LINE WITH MARK ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1 SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.

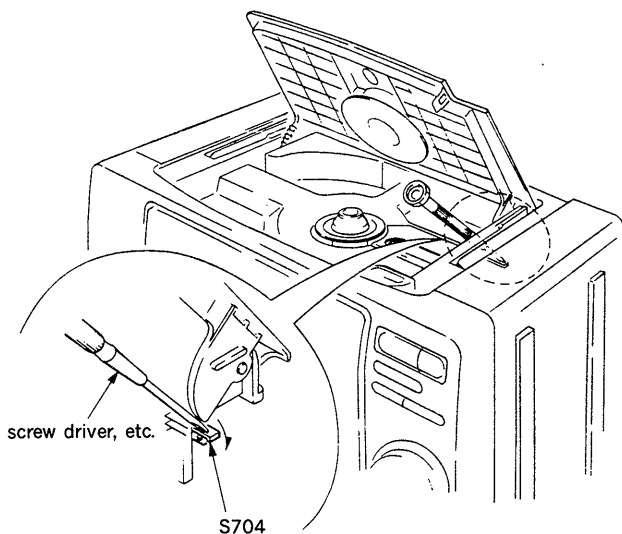
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe more than 25cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

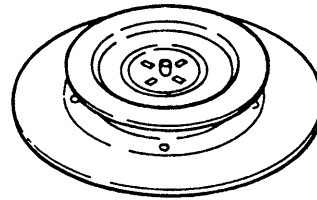
1. Turn POWER switch on with no disc inserted and make Function switch to CD position.
2. Open the lid for CD.
3. Turn on S704 as following figure.
4. Press ▷ key.
5. Confirm the laser diode emission while observing the objecting lens. When there is no emission, Auto Power Control circuit or Optical Pick-up is broken.
Objective lens moves up and down three times for the focus search.



CHUCK PLATE JIG ON REPAIRING

On repairing CD section, playing a disc without the CD lid, use Chuck Plate Jig.

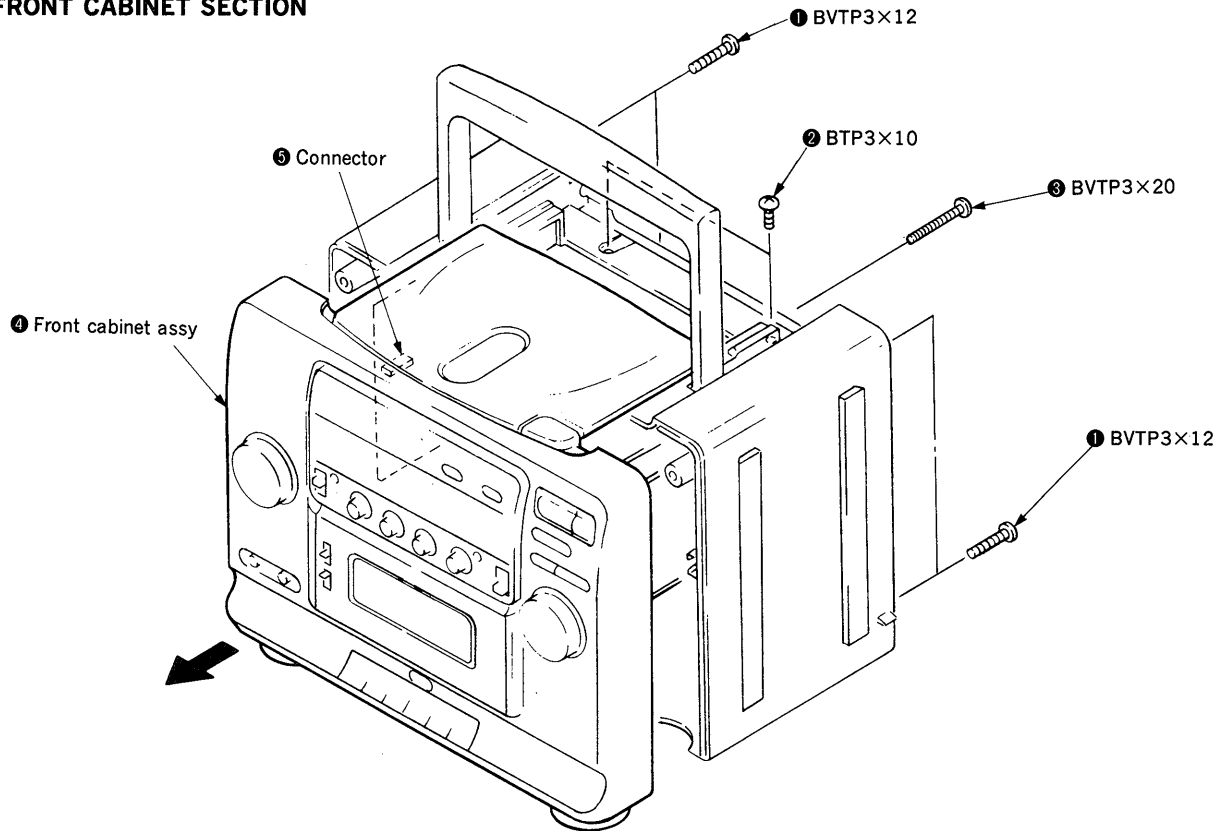
- Code number of Chuck Plate Jig : X-4918-255-1



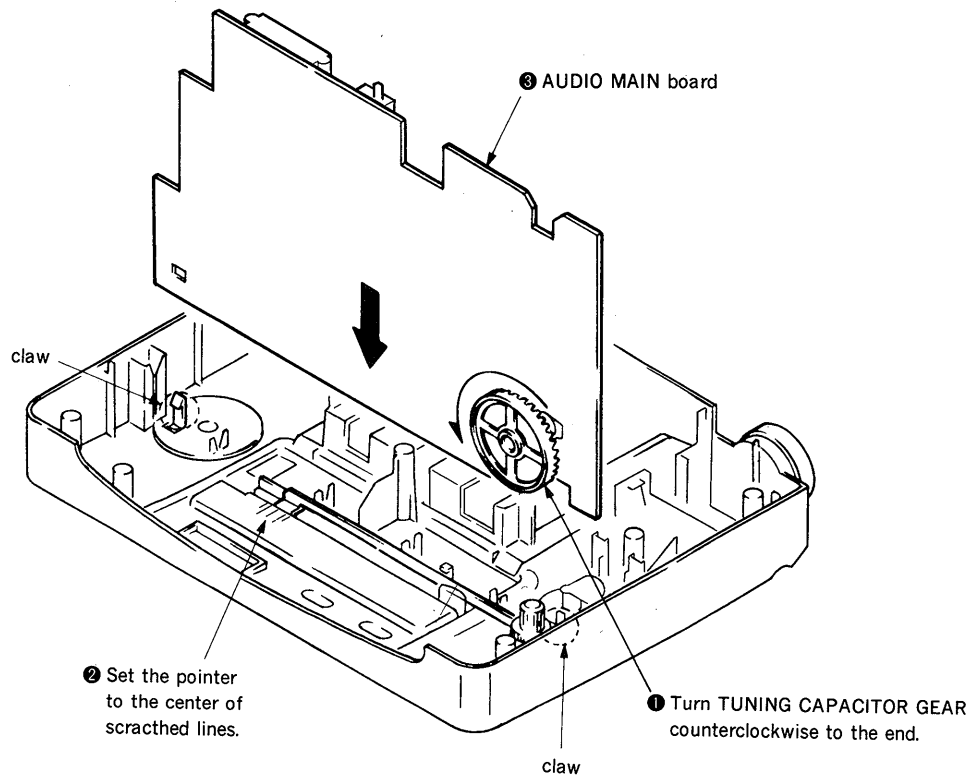
SECTION 2 DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

2-1. FRONT CABINET SECTION



2-2. POINTER SETTING



SECTION 3 MECHANICAL ADJUSTMENTS

PRECAUTION

- Clean the following parts with a denatured-alcohol-moistened swab :

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers
- Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
- Do not use a magnetized screwdriver for the adjustments.
- After the adjustments, apply suitable locking compound to the parts adjusted.
- The adjustments should be performed with the rated power supply voltage unless otherwise noted.
- Power supply voltage: 9V dc.

Torque Measurement

Torque	Torque meter	Meter reading
Forward	CQ-102C	20–60g•cm (0.28–0.83 oz•inch)
Forward back tension	CQ-102C	2–6g•cm (0.028–0.083 oz•inch)
Reverse	CQ-102RC	20–60g•cm (0.28–0.83 oz•inch)
Reverse back tension	CQ-102RC	2–6g•cm (0.028–0.083 oz•inch)
Fast Forward	CQ-201B	more than 50g•cm (more than 0.69 oz•inch)
Rewind	CQ-201B	more than 50g•cm (more than 0.69 oz•inch)

Tape Tension Measurement

Mode	Tension meter	Meter Reading
Forward	CQ-403A	more than 70g (more than 2.47 oz)
Reverse	CQ-403R	

SECTION 4 ELECTRICAL ADJUSTMENTS

4-1. TAPE RECORDER SECTION

Standard Output Level

Output terminal	SP OUT	HP OUT
load impedance	3.2Ω	32Ω
output signal level	0.775V (0dB)	0.25V (–10dB)

Test Tape

Type	Signal	Used for
WS-48A	3kHz, 0dB	tape speed adjustment

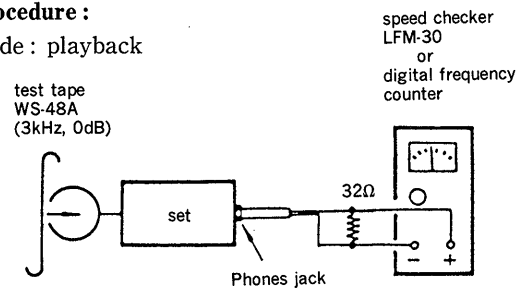
Tape Speed Adjustment

Setting :

FUNCTION switch : TAPE

Procedure :

Mode : playback

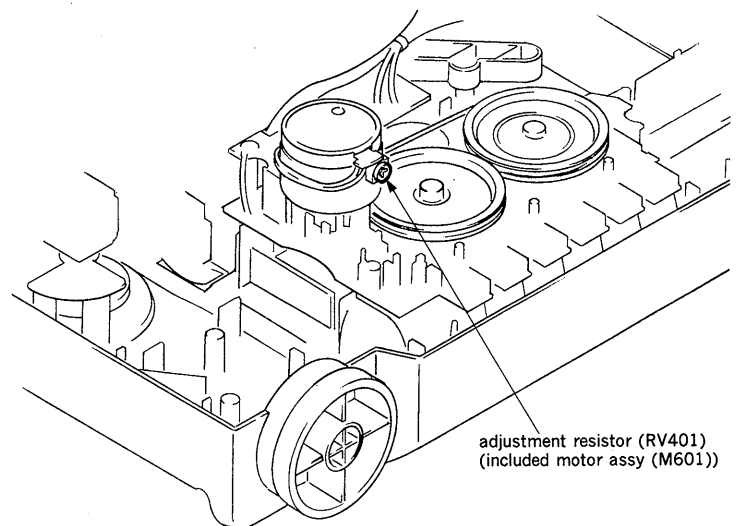


Adjustment Value :

Speed checker	Digital frequency counter
–3% to +3%	2,910 to 3,090Hz

Frequency difference between the beginning and the end of the tape should be within $\pm 1.5\%$ (45Hz).

Adjustment Location :



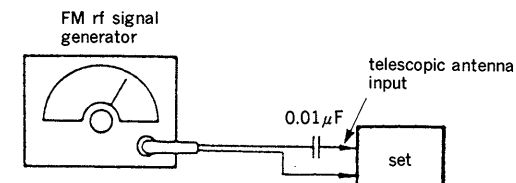
4-2. TUNER SECTION

• FM Section

Setting :

FUNCTION switch : RADIO

BAND switch : FM



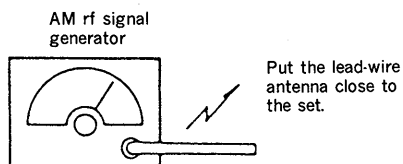
22.5kHz frequency deviation by 400Hz signal
output level: as low as possible

• AM Section

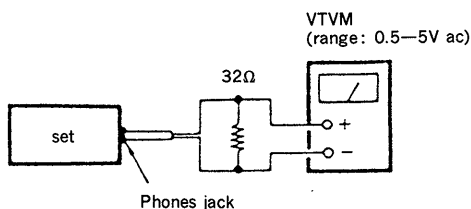
Setting :

FUNCTION switch : RADIO

BAND switch : AM



30% amplitude modulation by 400Hz signal



FM FREQUENCY COVERAGE ADJUSTMENT

Adjust for a maximum reading on VTVM.

L2

CT1-2

86.5MHz

109.5MHz

FM TRACKING ADJUSTMENT

Adjust for a maximum reading on VTVM.

L1

CT1-1

86.5MHz

109.5MHz

AM FREQUENCY COVERAGE ADJUSTMENT

Adjust for a maximum reading on VTVM.

T1

CT1-4

520kHz

1,780kHz

AM TRACKING ADJUSTMENT

Adjust for a maximum reading on VTVM.

L3

CT1-3

620kHz

1,400kHz

AM IF ADJUSTMENT

Adjust for a maximum reading on VTVM.

CP1

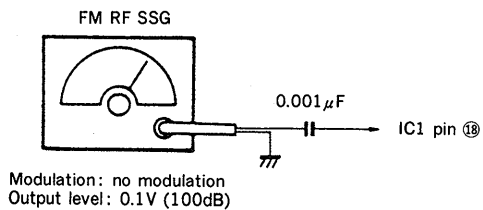
455kHz

Adjustment Location : main board

- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.
- Remove telescopic antenna in FM section adjustments.

FM VCO ADJUSTMENT

Setting :



Carrier Frequency : According to the color of the mark on ceramic (CF2).

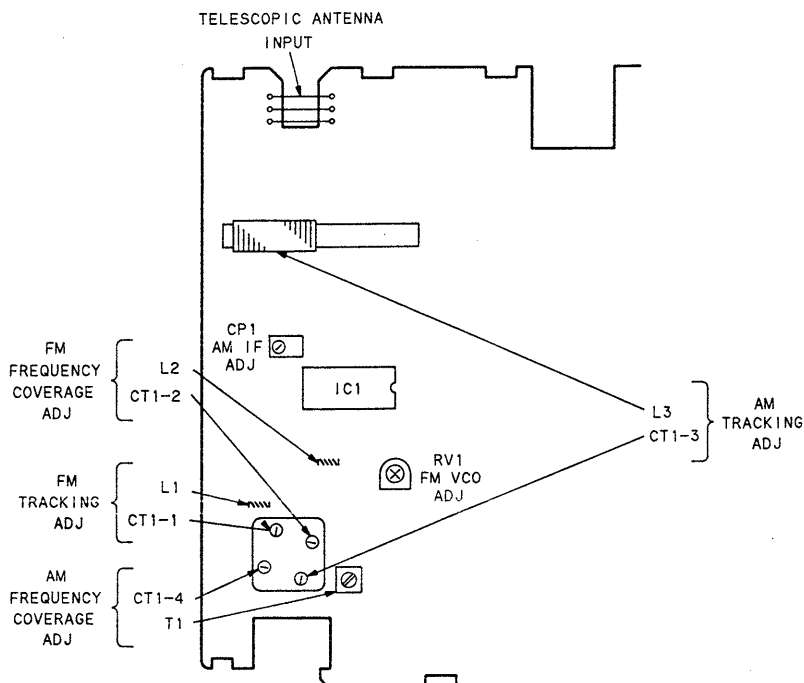
Mark	Carrier Frequency
red	10.7 MHz
blue	10.67 MHz
orange	10.73 MHz
black	10.64 MHz
white	10.76 MHz

Procedure :

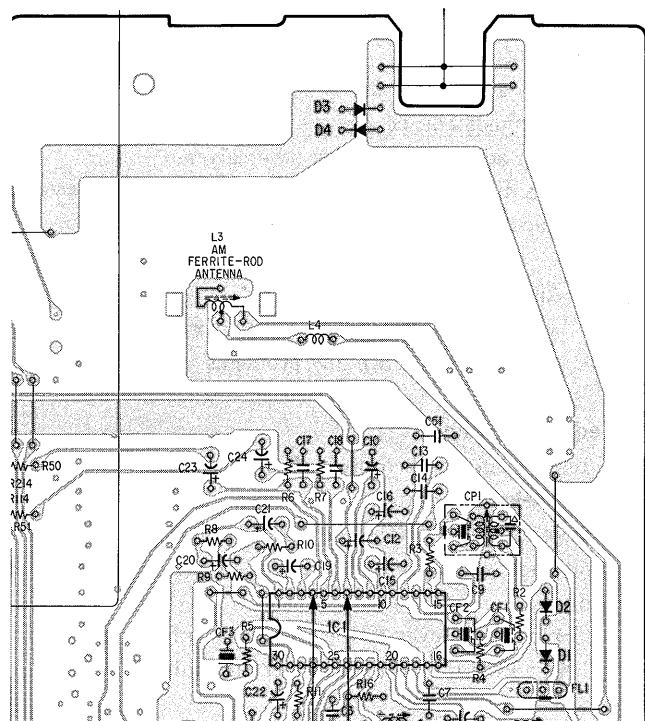
1. Adjust RV1 so that the reading on the frequency counter becomes in $76.0\text{kHz} \pm 0.3\text{kHz}$.

Adjustment Location : main board

MAIN BOARD—Component side—



MAIN BOARD—Conductor side—



4-3. CD SECTION

Notes on Adjustment

1. Perform adjustment in test mode.
After adjustment, be sure to release test mode.
2. Perform adjustments in the order given.
3. Use the disc (YEDS-18, Part No. 3-702-101-01) only when so indicated.

Before Adjustment

Put the set into test mode and perform the following checks. Repair if there are any problems.

• Sled Motor Check

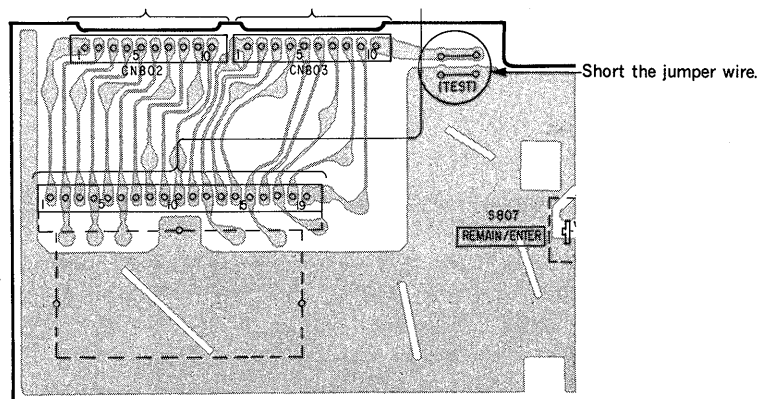
1. Press $\triangleright$ button, then press $\blacksquare$ button.
2. Press $\blacktriangleright\blacktriangleleft$, $\blacktriangleleft\blacktriangleright$ buttons and confirm that the FOP moves smoothly from the innermost to outermost circumference and back smoothly and with no catching or abnormal noises.
 $\blacktriangleright\blacktriangleleft$: FOP moves to the outer circumference
 $\blacktriangleleft\blacktriangleright$: FOP moves to the inner circumference

• Focus Search Check

1. Press $\triangleright$ button. (Focus search operation is performed continuously.)
2. Look at the FOP objective lens and confirm the it moves up and down smoothly, with no catching or abnormal noises.
3. Press $\blacksquare$ button.
Confirm that focus search operation stops. If it does not, press $\blacksquare$ button again longer.

How to Put the Set into Test Mode

1. Short the following portion on the CD CONTROL board.
2. Turn the FUNCTION selector to CD position.



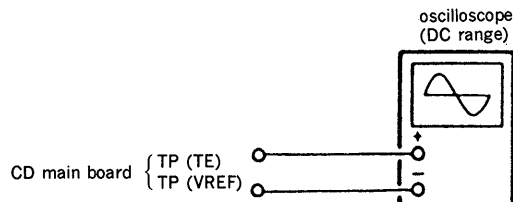
[CD CONTROL BOARD]

04

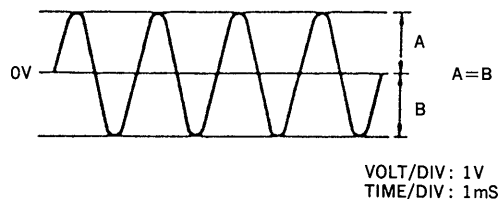
Traverse Adjustment

This adjustment is to be done when the optical pick-up block is replaced.

Procedure :



1. Put the set into test mode.
2. Connect the oscilloscope between TP (TE) and TP (VREF).
3. Press the $\blacktriangleright\blacktriangleleft$ and $\blacktriangleleft\blacktriangleright$ buttons to move the FOP to the center.
4. Insert disc (YEDS-18) and press $\triangleright$ button.
5. Adjust RV701 so that the oscilloscope traverse waveform is symmetrical, as shown in the figure below.
6. Release test mode after adjustment is completed.



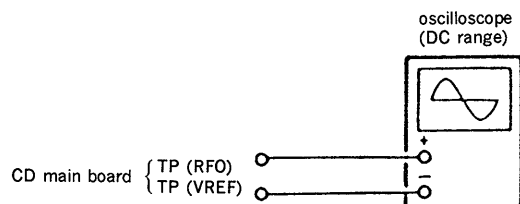
Adjustment value : $1.7 \pm 0.8V_{p-p}$ (A + B)

Adjustment Location : CD main board (See page 11.)

Focus Bias Adjustment

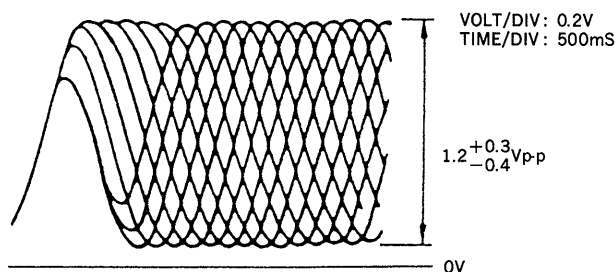
This adjustment is to be done when the optical pick-up block is replaced.

Procedure :



1. Put the set into test mode.
2. Connect the oscilloscope between TP (RFO) and TP (VREF).
3. Press the ►► and ◄◄ buttons to move the FOP to the center. (Move the FOP to the music area on the disc to enable easy visibility of the eye pattern.)
4. Insert disc (YEDS-18) and press ► button.
5. Adjust RV702 so that the oscilloscope waveform is as shown in the figure below (eye pattern).
A good eye pattern means that the diamond shape (◊) in the center of the waveform can be clearly distinguished.
6. Release test mode after adjustment is completed.

• RF signal reference waveform (eye pattern)



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

Adjustment Location : CD main board (See page 11.)

Focus/Tracking Gain Adjustment

A frequency response analyzer is necessary in order to perform this adjustment exactly.

However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate.

However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise when the 2-axis device operates increases.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.
- When gain adjustment is off, the symptoms below appear.

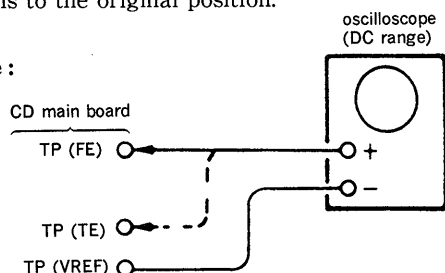
	Gain	Focus	Tracking
Symptoms			
• The time until music starts becomes longer for ■ →▷ on automatic selection. (◄◄, ►► buttons pressed.) (Normally takes about 2 seconds.)		low	low or high
• Music does not start and disc continues to rotate for ■ →▷ or automatic selection. (◄◄, ►► buttons pressed.)		—	low
• Sound is interrupted during PLAY. Or time counter display stops progressing.		—	low
• More poise during 2-axis device operation.		high	high

The following is a simple adjustment method.

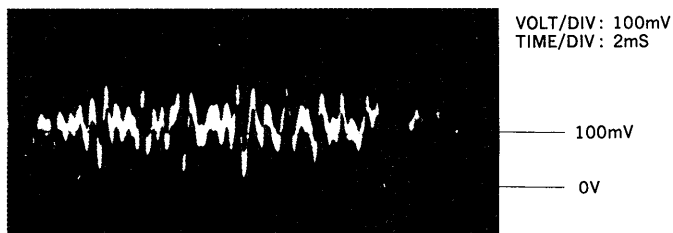
—Simple Adjustment—

Note : Since exact adjustment cannot be performed, remember the positions of the controls before performing the adjustment. If the positions after the simple adjustment are only a little different, return the controls to the original position.

Procedure :

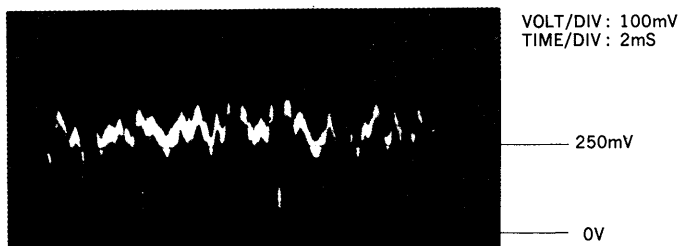


1. Keep the set horizontal.
If the set not horizontal, this adjustment cannot be performed due to the gravity against the 2 axis device.
2. Put the set into test mode.
3. Connect oscilloscope to CD main board TP (FE).
4. Insert disc (YEDS-18) and press ▷ button.
5. Adjustment RV703 so that the waveform is as shown in the figure below. (focus gain adjustment)

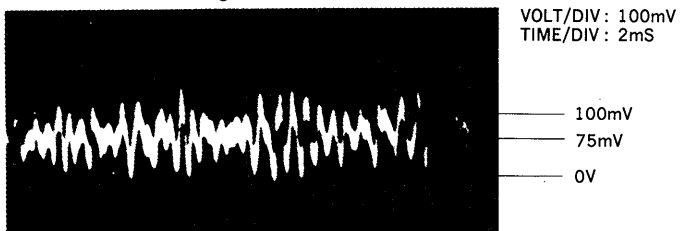


• Incorrect Examples (DC level changes more than on adjusted waveform)

low focus gain



high focus gain

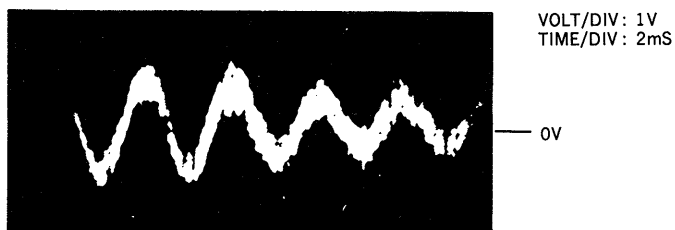


6. Connect oscilloscope to TP (TE).
7. Adjust RV704 so that the waveform is as shown in the figure below. (tracking gain adjustment)
8. Release test mode after adjustment is completed.

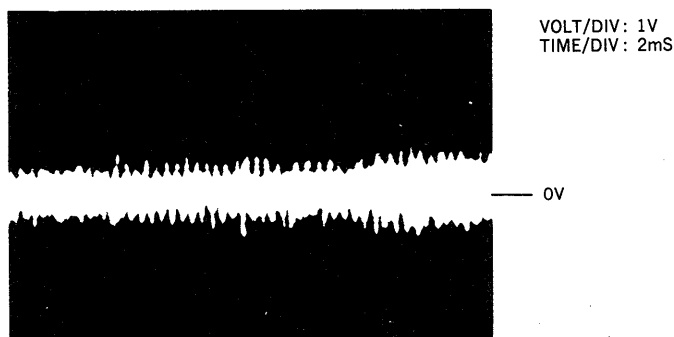


• Incorrect Examples (fundamental wave appears)

low tracking gain

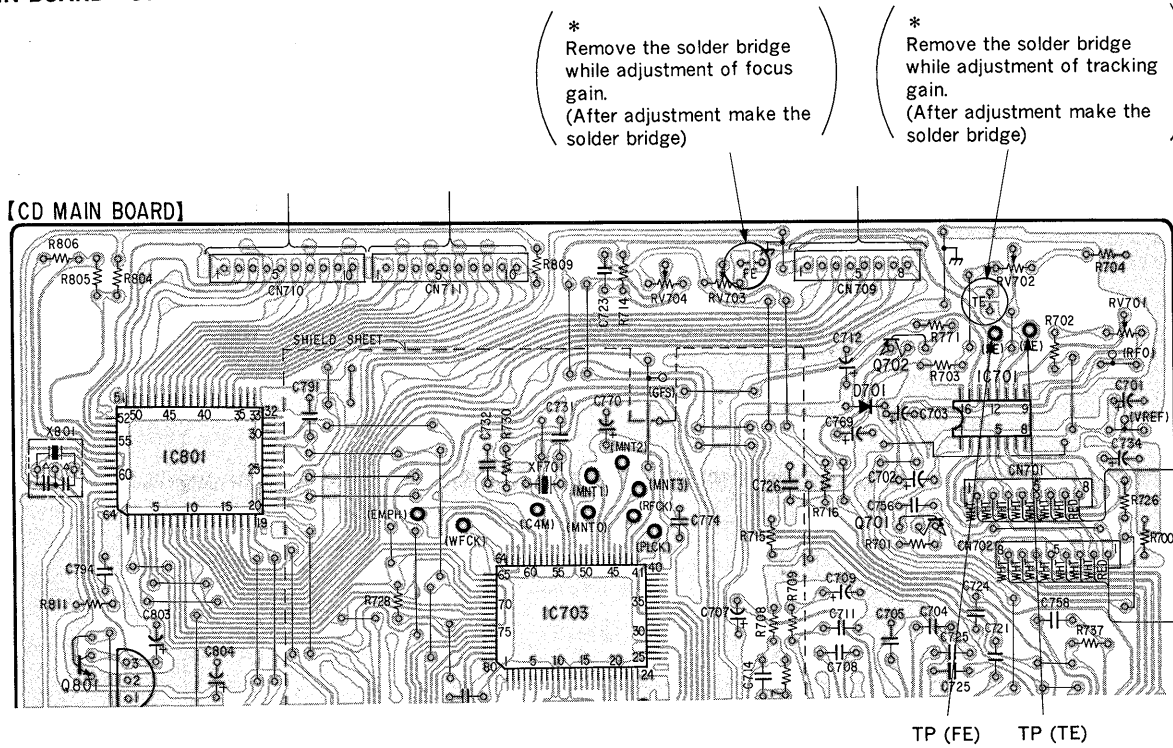


high tracking gain (higher fundamental wave than for low gain)

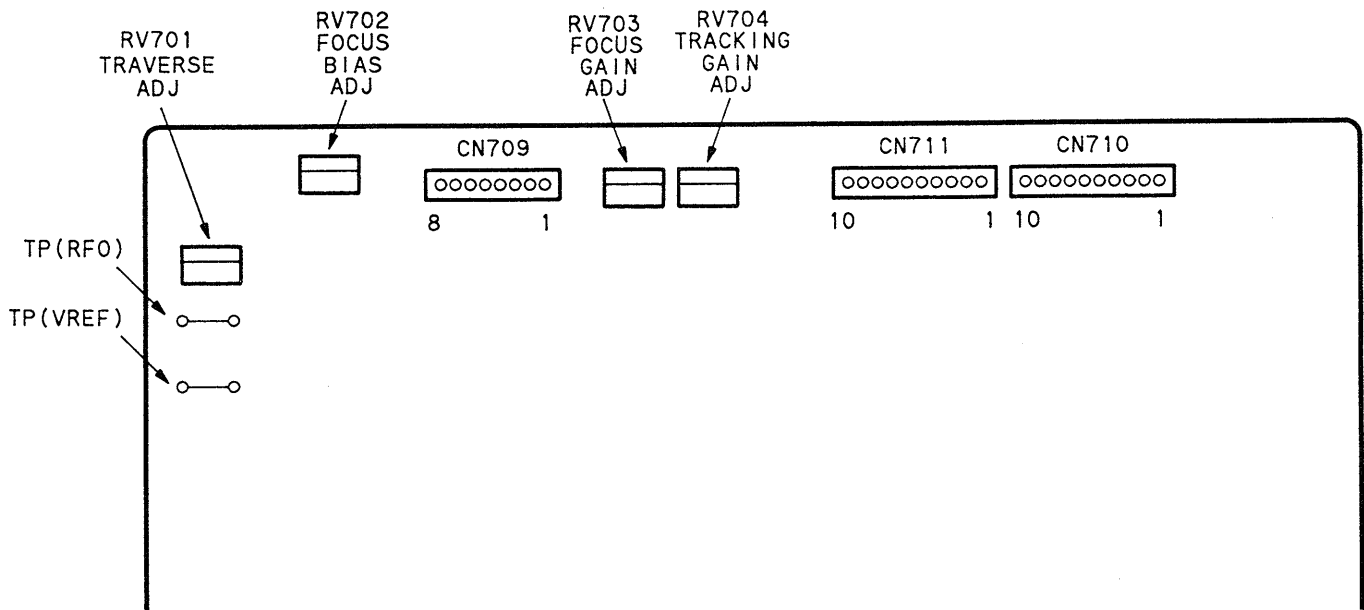


Adjustment Location :

CD MAIN BOARD—Conductor side—

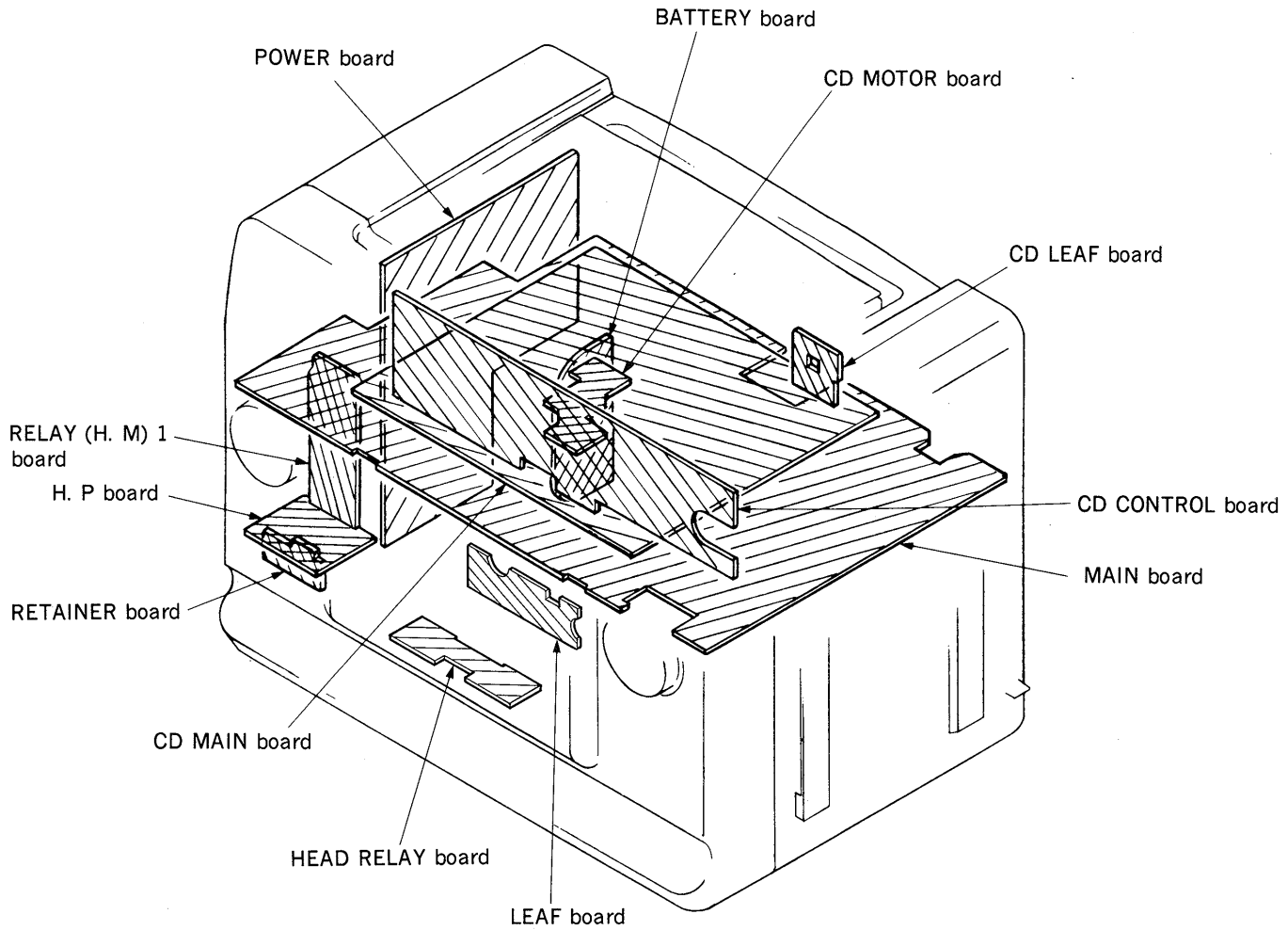


CD MAIN BOARD—Component side—



SECTION 5 DIAGRAMS

5-1. CIRCUIT BOARDS LOCATION

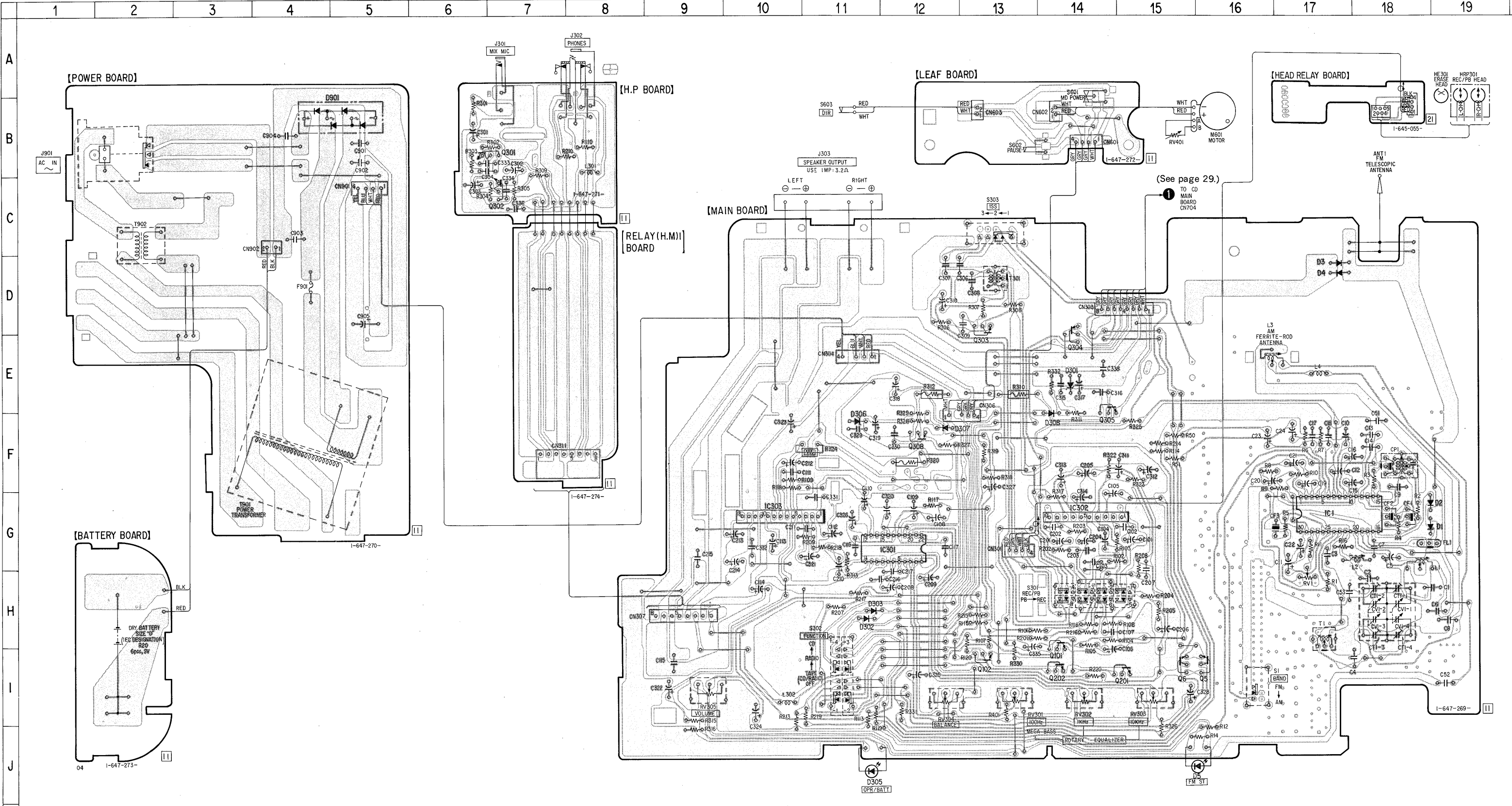


● Semiconductor Location 5-4. PRINTED WIRING BOARDS—TUNER/AUDIO/MECHANISM DECK/POWER SECTION— ● Refer to page 15 for Semiconductor Lead Layouts.

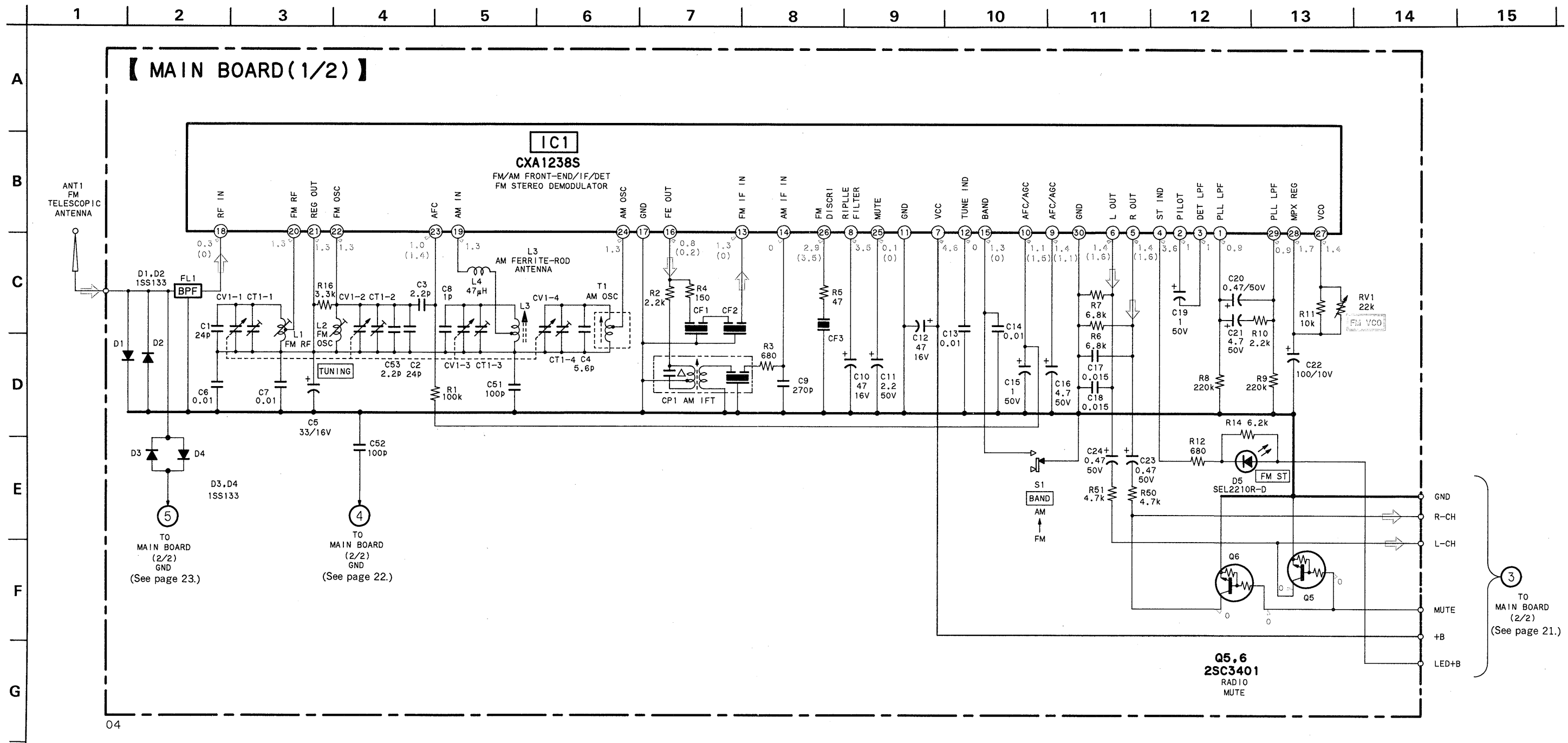
Ref. No.	Location
D1	G-18
D2	G-18
D3	D-17
D4	D-17
D5	J-15
D301	E-14
D302	H-11
D303	H-11
D305	J-11
D306	F-11
D307	F-12
D308	F-14
D901	B-5
IC1	G-17
IC301	G-12
IC302	G-14
IC303	G-10
Q5	I-15
Q6	I-15
Q101	I-14
Q102	I-13
Q201	I-14
Q202	I-14
Q301	B-7
Q302	C-7
Q303	D-13
Q304	E-14
Q305	F-14
Q308	F-12

Note:

- : parts extracted from the component side.
- : indicates side identified with part number.
- ▨ : Pattern on the side which is seen.



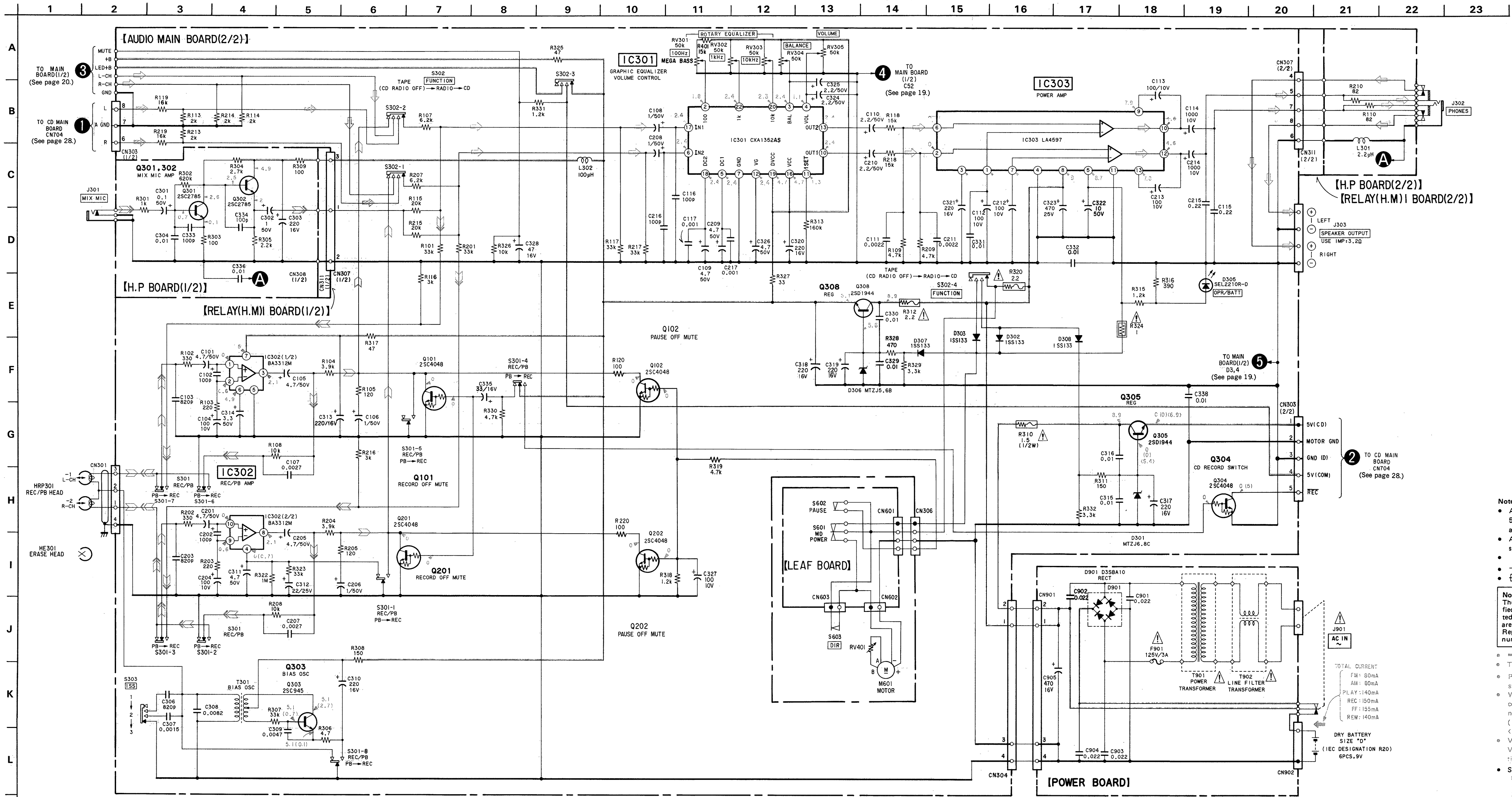
5-5. SCHEMATIC DIAGRAM—TUNER SECTION— • Refer to page 31 for IC Block Diagrams.



Note:

- All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
- Δ : internal component.
- $\square$: B+ Line
- $\square$: adjustment for repair.
- Power voltage is dc 9V and fed with regulated dc power supply from battery terminal.
- Voltage is dc with respect to ground under no-signal (detuned) conditions.
no mark : FM
() : FM
- Voltages are taken with a VOM (input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
- Signal path.
 $\Rightarrow$: FM

5-6. SCHEMATIC DIAGRAM—AUDIO/MECHANISM DECK/POWER SECTION— • Refer to page 31 for IC Block Diagrams.



Note:
• All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.
• All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
• % : indicates tolerance.
• : nonflammable resistor.
• : fusible resistor.

Note:
The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

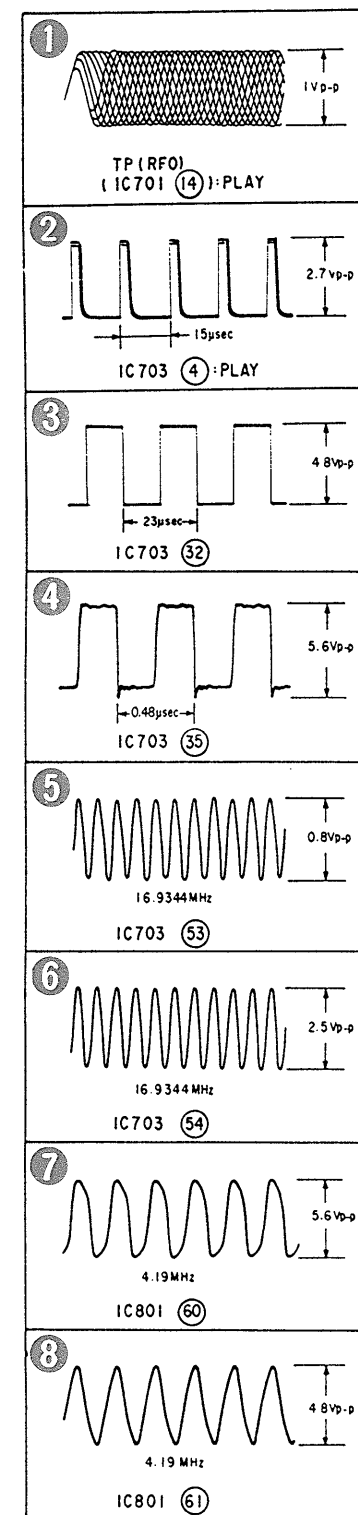
Note:
Les composants identifiés par une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

• : B+ Line
• Total current is measured with no cassette installed.
• Power voltage is dc 9V and fed with regulated dc power supply from battery terminal.
• Voltage is dc with respect to ground under no-signal conditions.
• no mark : PB
• () : REC
• < > : CD
• Voltages are taken with a VOM (input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
• Signal path:
• : FM
• : PB
• : REC
• : CD

TOTAL CURRENT
FM: 80mA
AM: 80mA
PLAY: 140mA
REC: 150mA
FF: 155mA
REW: 140mA

DRY BATTERY
SIZE "D"
(IEC DESIGNATION R20)
6PCS, 9V

• Waveforms



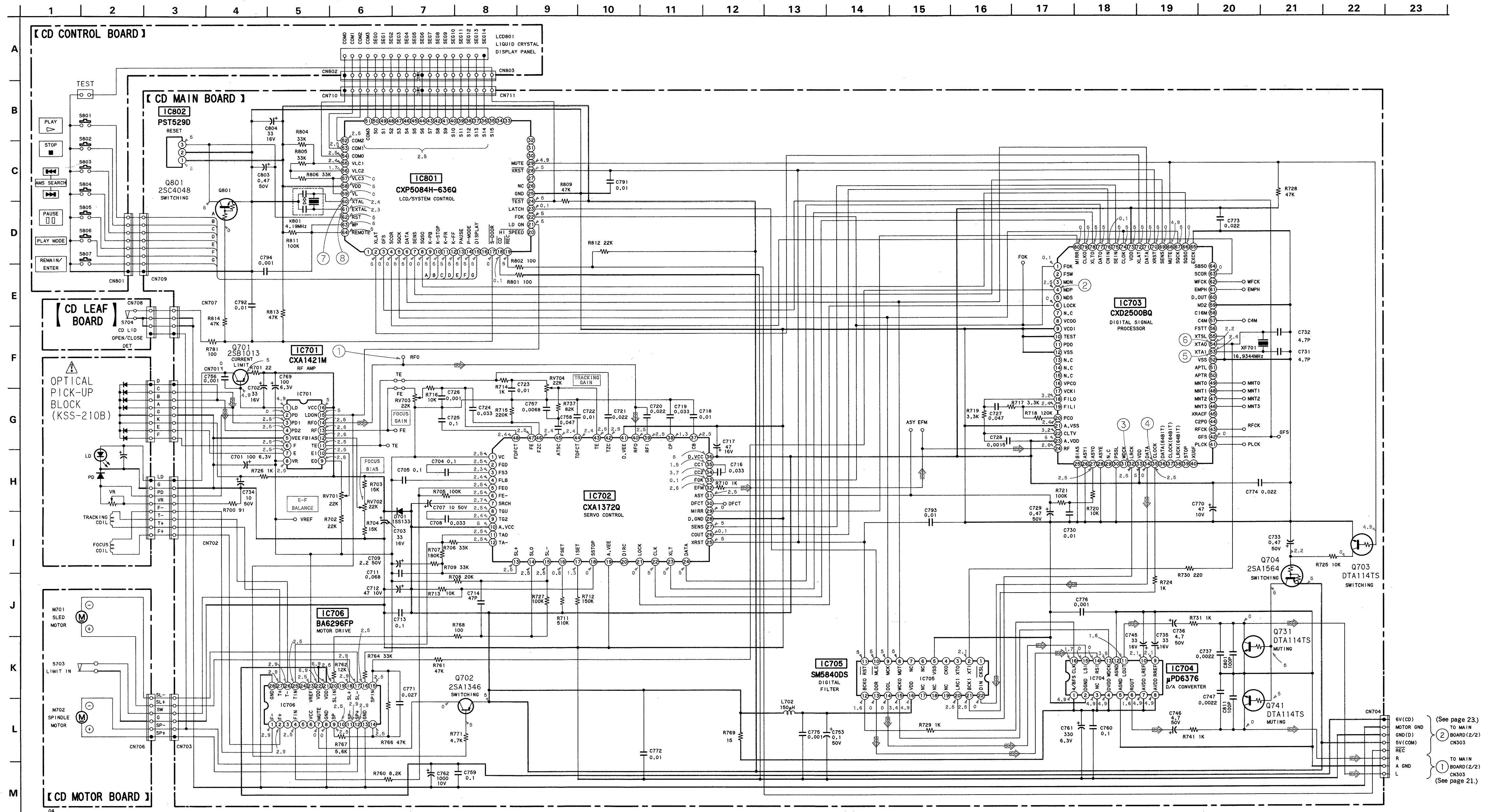
- Note:
- All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and $\frac{1}{2}\text{W}$ or less unless otherwise specified.
 - Δ : internal component.

Note: The components identified by mark Δ or dot line with mark Δ are critical for safety. Replace only with part number specified.

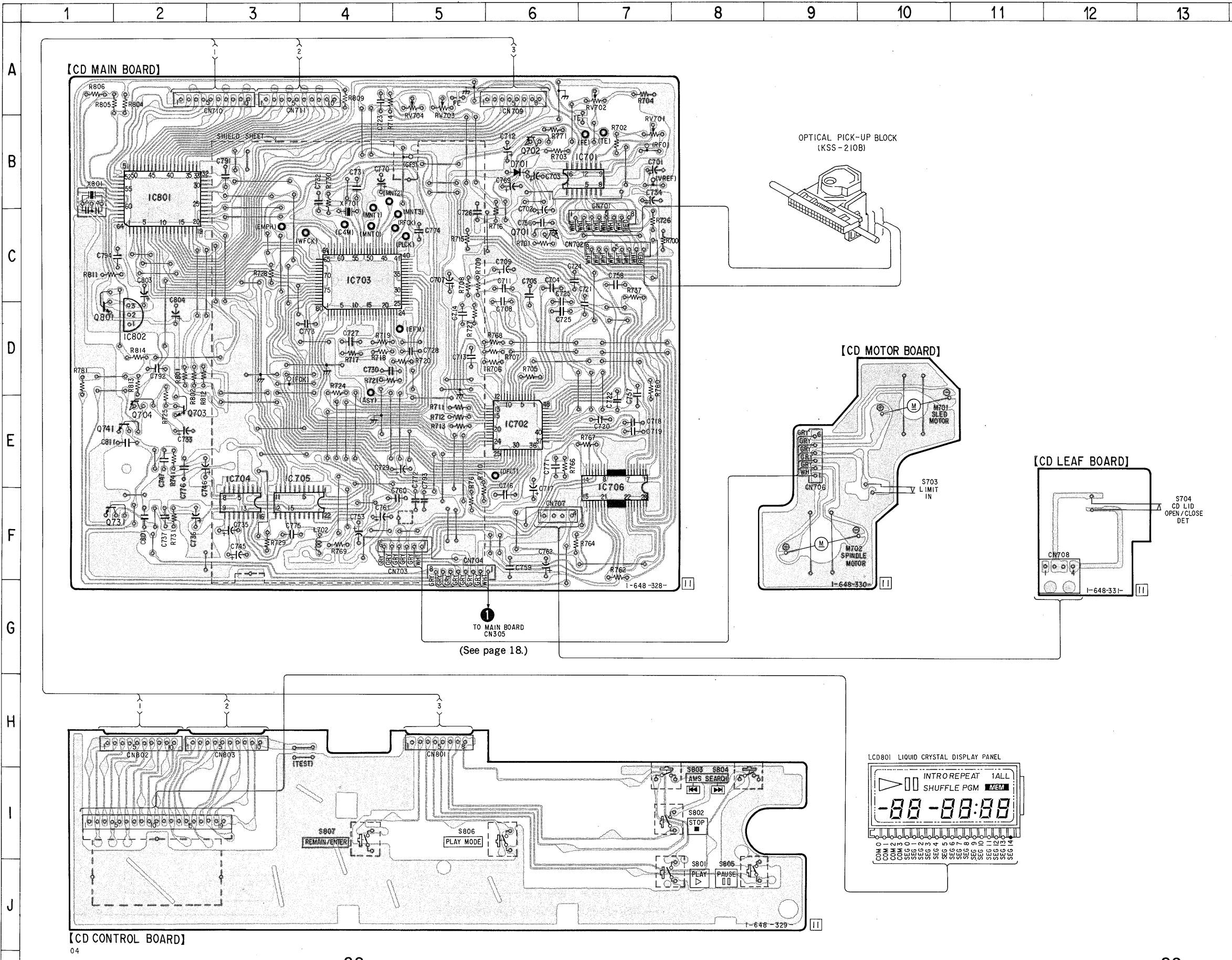
Note: Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- B+ Line
- adjustment for repair.
- Power voltage is dc 9V and fed with regulated dc power supply from battery terminal.
- Voltage is dc with respect to ground under no-signal conditions.
- no mark: CD
- Voltages are taken with a VOM (input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope.
- Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
- $\Rightarrow$: CD

5-7. SCHEMATIC DIAGRAM—CD SECTION— • Refer to page 31 for IC Block Diagrams.



5-8. PRINTED WIRING BOARDS—CD SECTION— • Refer to page 15 for Semiconductor Lead Layouts.



• Semiconductor Location

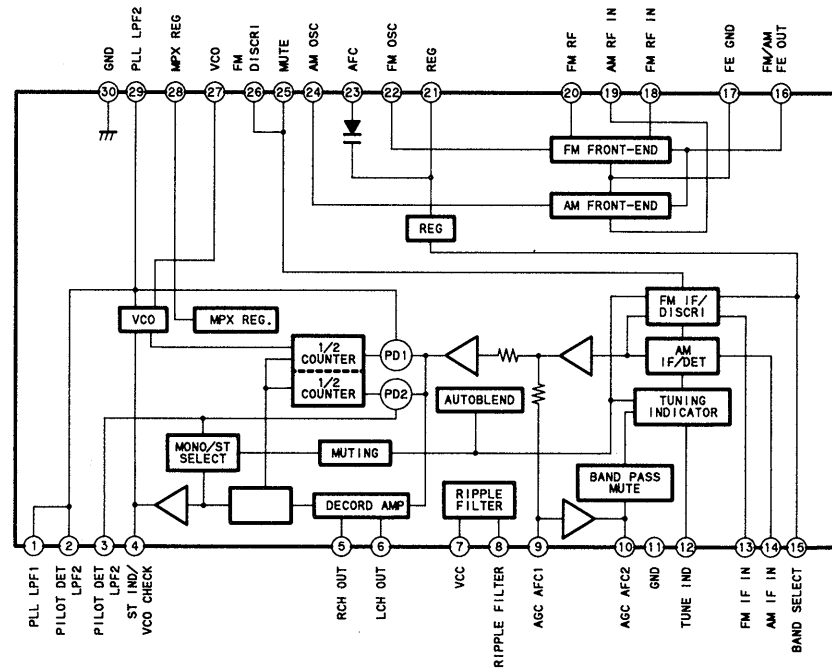
Ref. No.	Location
D701	B-6
IC701	B-7
IC702	E-6
IC703	C-4
IC704	F-3
IC705	F-3
IC706	F-7
IC801	B-2
IC802	D-2
Q701	C-6
Q702	B-6
Q703	E-2
Q704	E-2
Q731	F-1
Q741	E-2
Q801	D-1

Note:

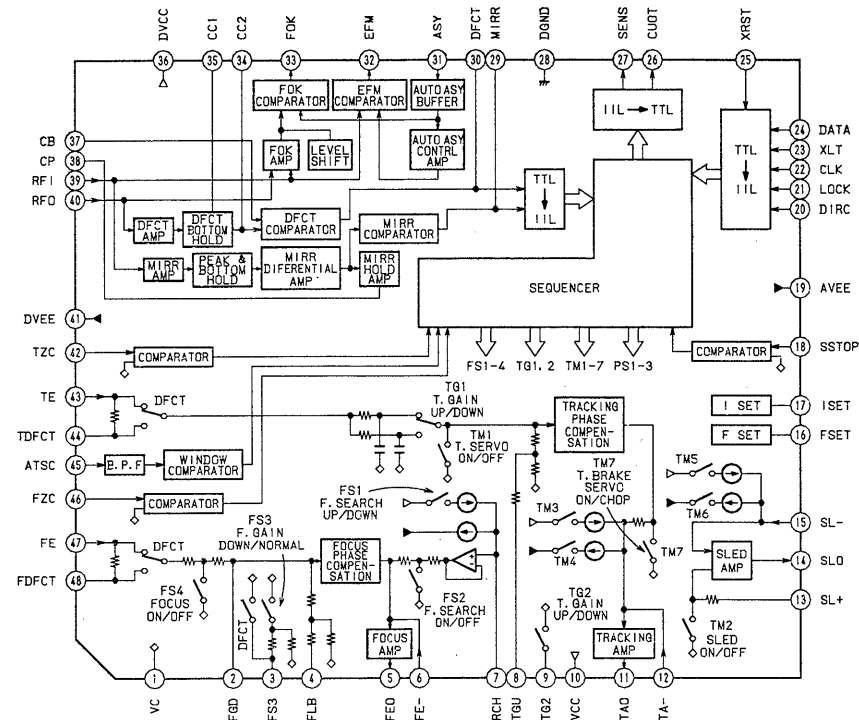
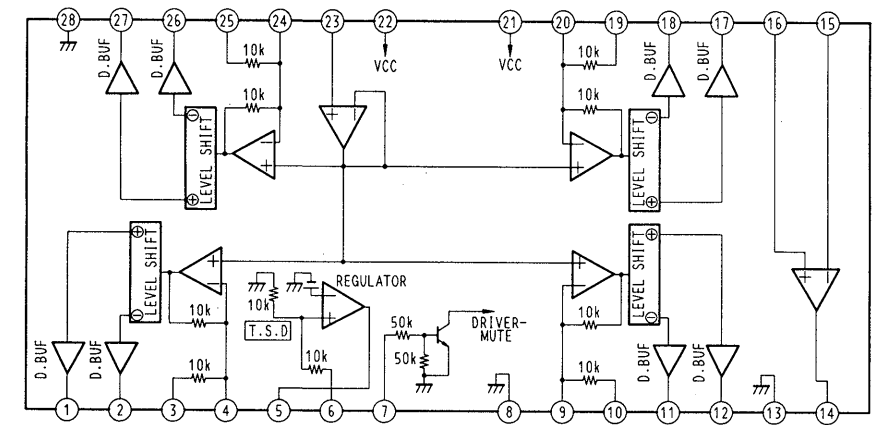
- : parts extracted from the component side.
- ▨ : Pattern on the side which is seen.

- IC Block Diagrams

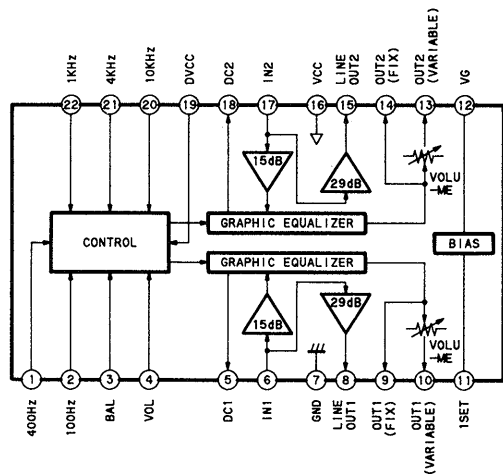
IC1 CXA1238S



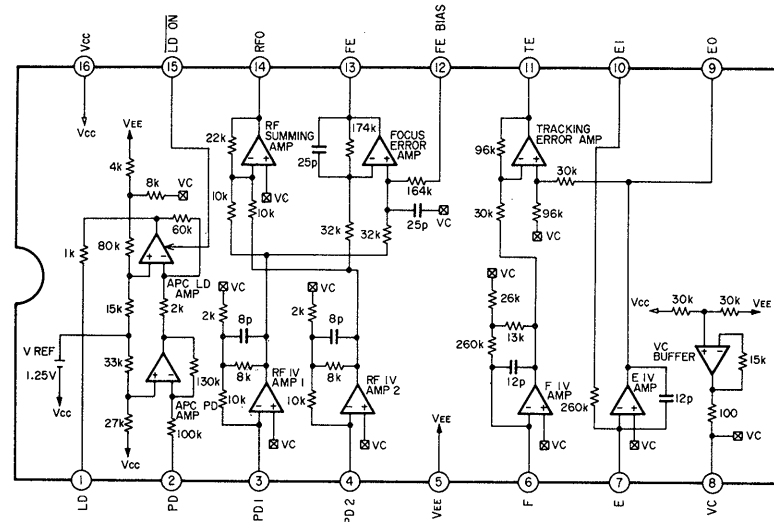
IC702 CXA1372AQ

**IC706 BA6296FP**

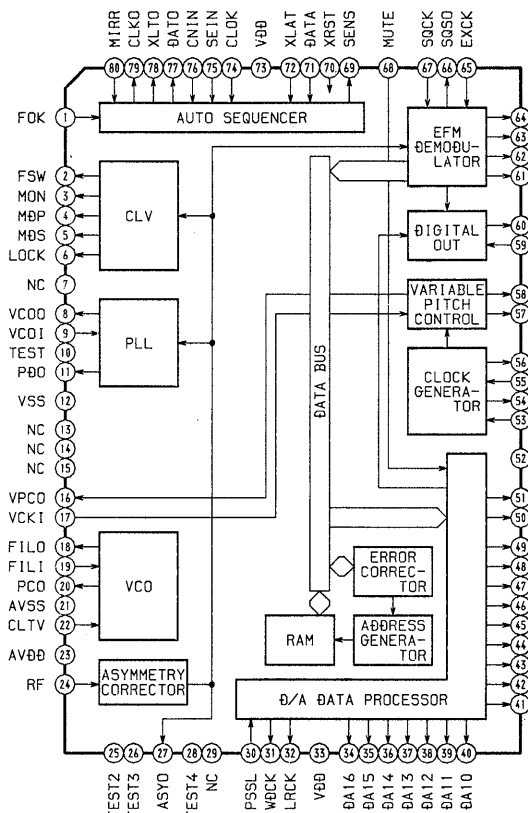
IC301 CXA1352AS



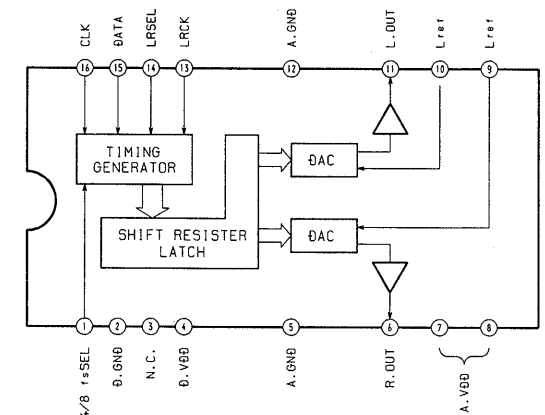
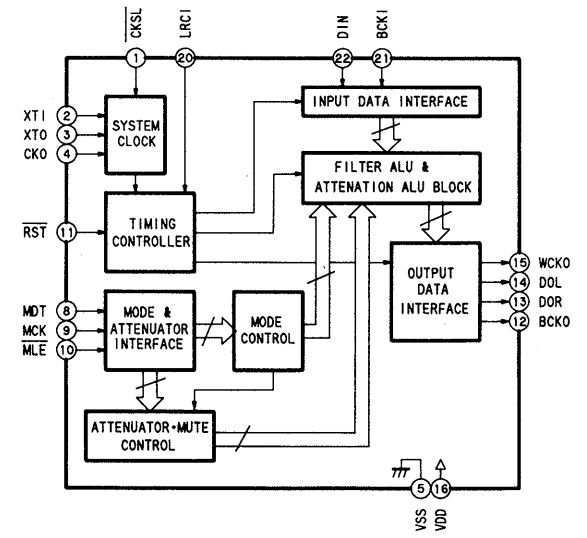
IC701 CXA1421M



IC703 CXD2500BQ



IC704 μ PD6376

**IC705 SM5840DS**

SECTION 6 EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- -XX and -X mean standardized parts, so they may have some difference from the original one.

- Color Indication of Appearance Parts
Example :

KNOB, BALANCE (WHITE)... (RED)

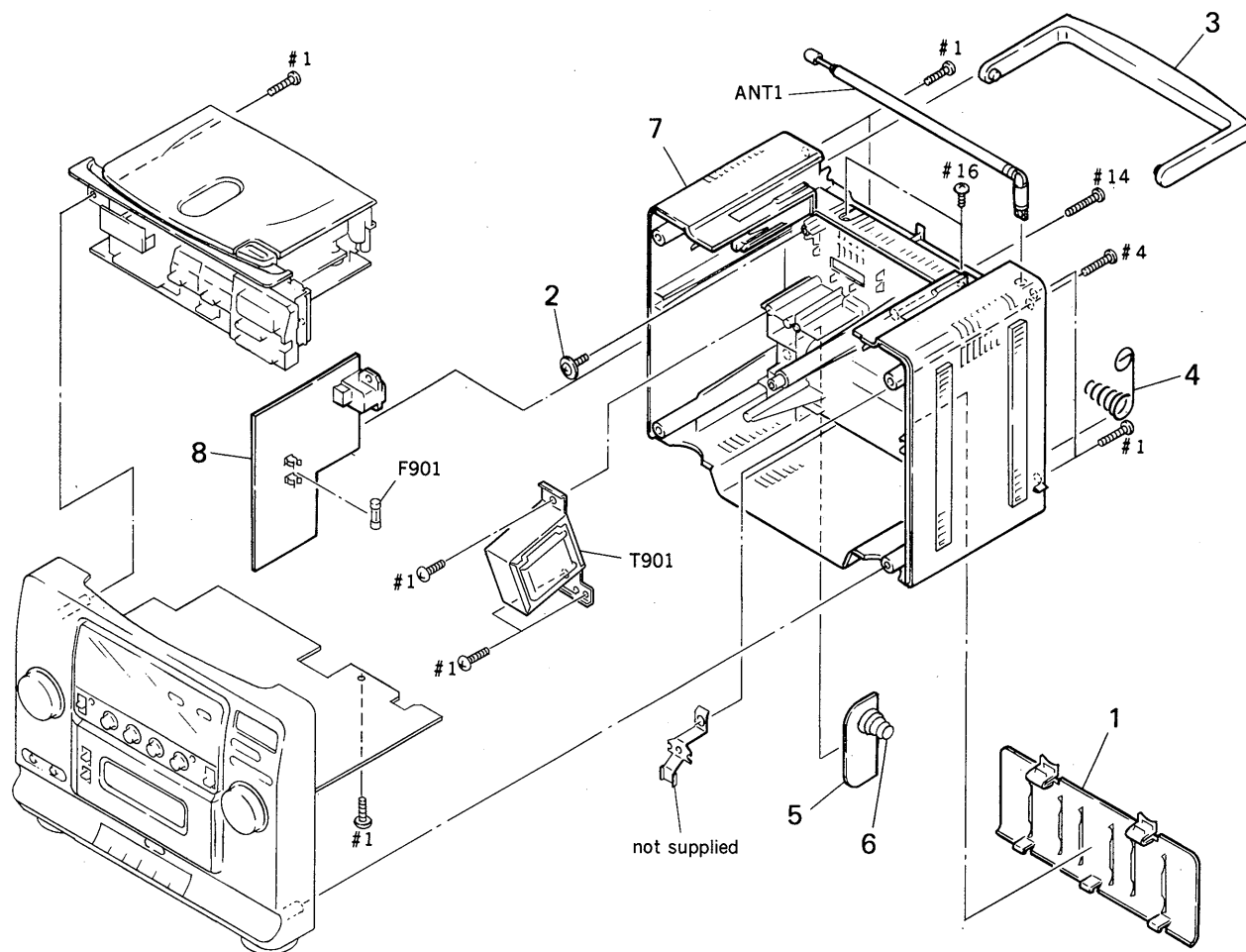
↑ ↑
Parts Color Cabinet's Color

- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

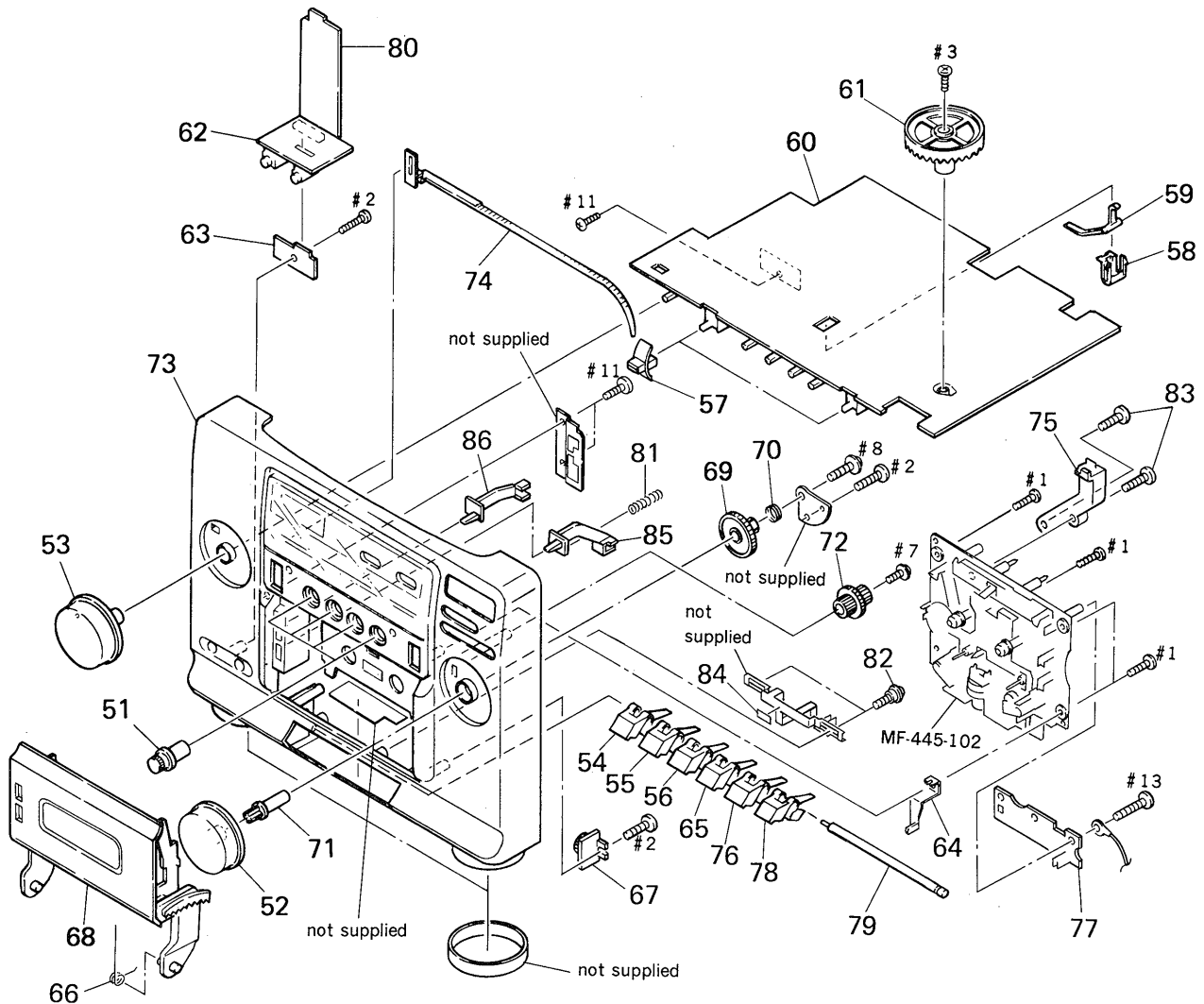
6-1. CABINET SECTION



Ref. No.	Part No.	Description	Remark
1	3-368-522-11	LID, BATTERY CASE	
2	3-365-853-01	SCREW (+BTPWH) (3X12)	
3	X-3363-789-1	HANDLE ASSY	
4	3-351-387-01	SPRING (+, -)	
* 5	1-647-273-11	BATTERY BOARD	
6	3-379-748-01	SPRING (-)	

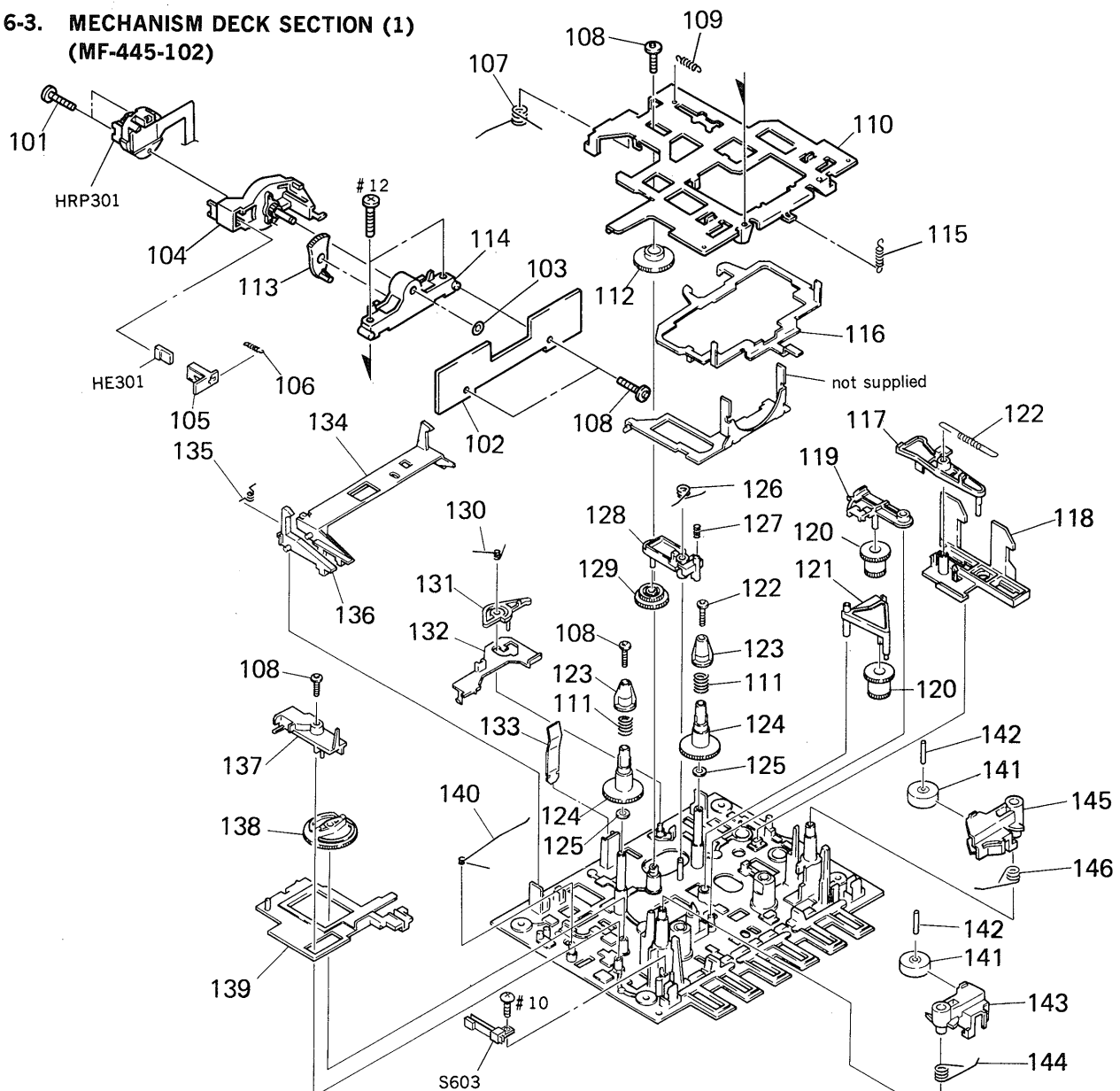
Ref. No.	Part No.	Description	Remark
7	3-387-410-01	CABINET, REAR (US)	
7	3-387-410-11	CABINET, REAR (Canadian)	
* 8	1-647-270-11	POWER BOARD	
ANT1	1-501-383-21	ANTENNA, TELESCOPIC	
Δ F901	1-532-970-11	FUSE, GLASS TUBE (3A/125V)	
Δ T901	1-423-548-11	TRANSFORMER, POWER	

6-2. FRONT CABINET SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	3-372-210-01	KNOB, GEQ.		69	3-372-179-01	GEAR, TUNING	
52	3-372-209-01	KNOB, TUNING		70	3-372-205-01	SPRING, LIMIT	
53	3-372-211-01	KNOB, VOLUME		71	3-372-180-01	GEAR, SHAFT	
54	3-386-769-01	BUTTON (REC), MD		72	3-372-176-01	GEAR, POINTER	
55	3-386-770-01	BUTTON (PLAY), MD		73	X-3366-300-1	CABINET (FRONT) SUB ASSY	
56	3-386-772-01	BUTTON (REW), MD		* 74	3-372-177-01	POINTER	
57	3-372-212-01	KNOB, BAND		75	3-386-779-01	LEVER, PUSH	
58	3-372-188-01	HOLDER (REC)		76	3-386-773-01	BUTTON (PAUSE), MD	
59	3-322-317-01	LEVER, REC		* 77	1-647-272-11	LEAF BOARD	
* 60	A-3264-250-A	MAIN BOARD, COMPLETE		78	3-386-774-01	BUTTON (STOP/EJECT), MD	
61	3-372-178-01	GEAR, TUNING CAPACITOR		* 79	3-386-777-01	SHAFT, MD BUTTON	
* 62	1-647-271-11	H.P. BOARD		* 80	1-647-274-11	RELAY (H.M) 1 BOARD	
* 63	1-647-277-11	RETAINER BOARD		81	4-936-648-01	SPRING, COMPRESSION	
64	3-386-778-01	RETAINER, MD		82	3-386-785-01	SCREW, PTPWH (3X5)	
65	3-386-771-01	BUTTON (FF), MD		83	4-931-757-31	SCREW +P 2.6X8	
66	3-386-784-01	SPRING, CASSETTE UP		* 84	3-386-781-01	LABEL, DIR	
67	3-351-377-01	DAMPER		* 85	3-386-775-01	LEVER, DIR	
68	X-3366-303-1	HOLDER SUB ASSY, CASSETTE		* 86	3-386-776-01	LEVER, MODE	

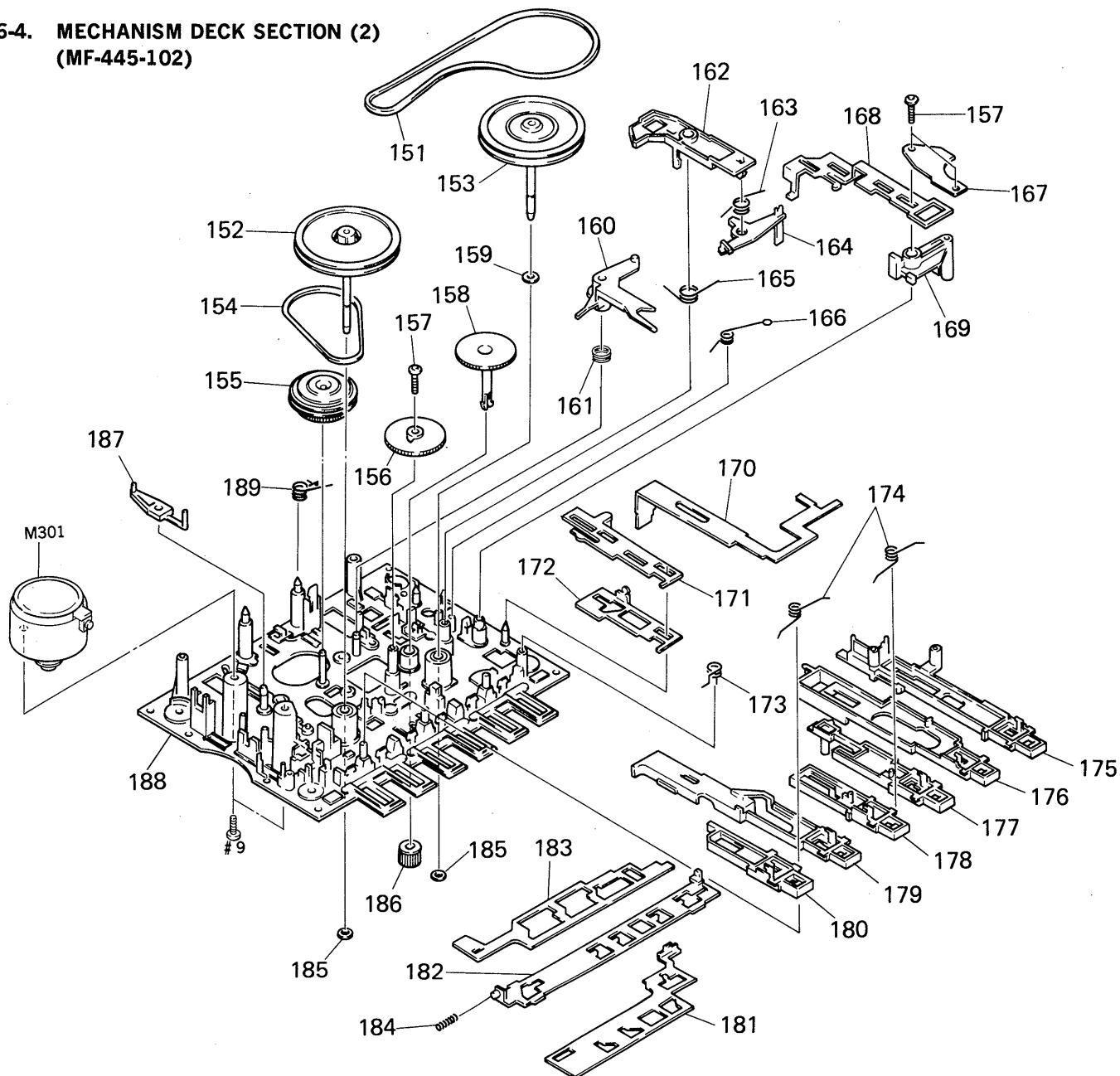
6-3. MECHANISM DECK SECTION (1)
(MF-445-102)



Ref. No.	Part No.	Description	Remark
101	3-309-597-81	SCREW (1.4), TAPPING	
* 102	1-645-055-21	HEAD RELAY BOARD	
103	3-328-432-01	WASHER, STOPPER	
104	X-3365-422-3	HOLDER ASSY, HEAD	
105	3-374-344-01	GUIDE, ERASE HEAD	
106	3-374-345-01	SPRING, TENSION	
107	3-374-342-01	SPRING (HEAD), TORSION	
108	3-344-737-11	SCREW (B1.4X6), TAPPING	
109	3-380-814-01	SPRING, TENSION	
* 110	3-381-657-01	CHASSIS, HEAD	
111	4-931-747-11	SPRING, COMPRESSION	
112	3-374-329-01	GEAR, MIDWAY	
113	3-381-660-01	LEVER (FAN-SHAPED)	
* 114	3-381-658-02	GEAR (BASE), HEAD	
115	3-386-829-01	SPRING, TENSION	
* 116	3-374-370-01	SLIDER (HD)	
117	3-374-336-01	LEVER (SW)	
* 118	3-374-367-01	LEVER (EJECT)	
119	3-374-338-01	LEVER (REW)	
120	3-374-339-01	GEAR, FR	
121	3-374-368-01	LEVER (FF)	
122	3-377-194-01	SPRING, TENSION	
123	4-930-408-11	CLAW, REEL	
124	3-374-326-01	TABLE, REEL	
125	3-377-195-01	WASHER (S)	

Ref. No.	Part No.	Description	Remark
126	3-374-327-01	SPRING (N R), TORSION	
127	3-343-264-81	COLLAR, SPRING	
128	3-374-363-01	LEVER (FWD)	
129	3-374-328-01	GEAR, FWD	
130	3-374-334-01	SPRING (BRAKE), TORSION	
131	3-374-333-01	LEVER (PAUSE)	
132	3-374-332-01	SLIDER (BRAKE)	
133	3-376-135-01	SPRING, CASSETTE	
134	3-374-366-01	LEVER (ERASE R)	
135	4-930-451-01	SPRING	
136	3-374-335-01	LEVER (ERASE N)	
137	3-374-330-01	LEVER (DIR A)	
138	3-374-365-01	GEAR (NR), CAM	
139	3-374-364-01	SLIDER (NR)	
140	3-374-331-01	SPRING (DIR), TORSION	
141	3-366-051-11	PINCH ROLLER	
142	3-366-052-11	SHAFT, PINCH ROLLER	
* 143	3-374-373-01	LEVER (PINCH R)	
144	3-374-347-01	SPRING (R), TORSION	
* 145	3-374-372-01	LEVER (PINCH N)	
146	3-374-346-01	SPRING (N), TORSION	
HE301	1-543-719-11	HEAD, MAGNETIC (ERASE)	
HRP301	1-500-013-11	HEAD, MAGNETIC (RECORD/PLAYBACK)	
S603	1-571-348-11	SWITCH, LEAF (DIR)	

6-4. MECHANISM DECK SECTION (2)
(MF-445-102)

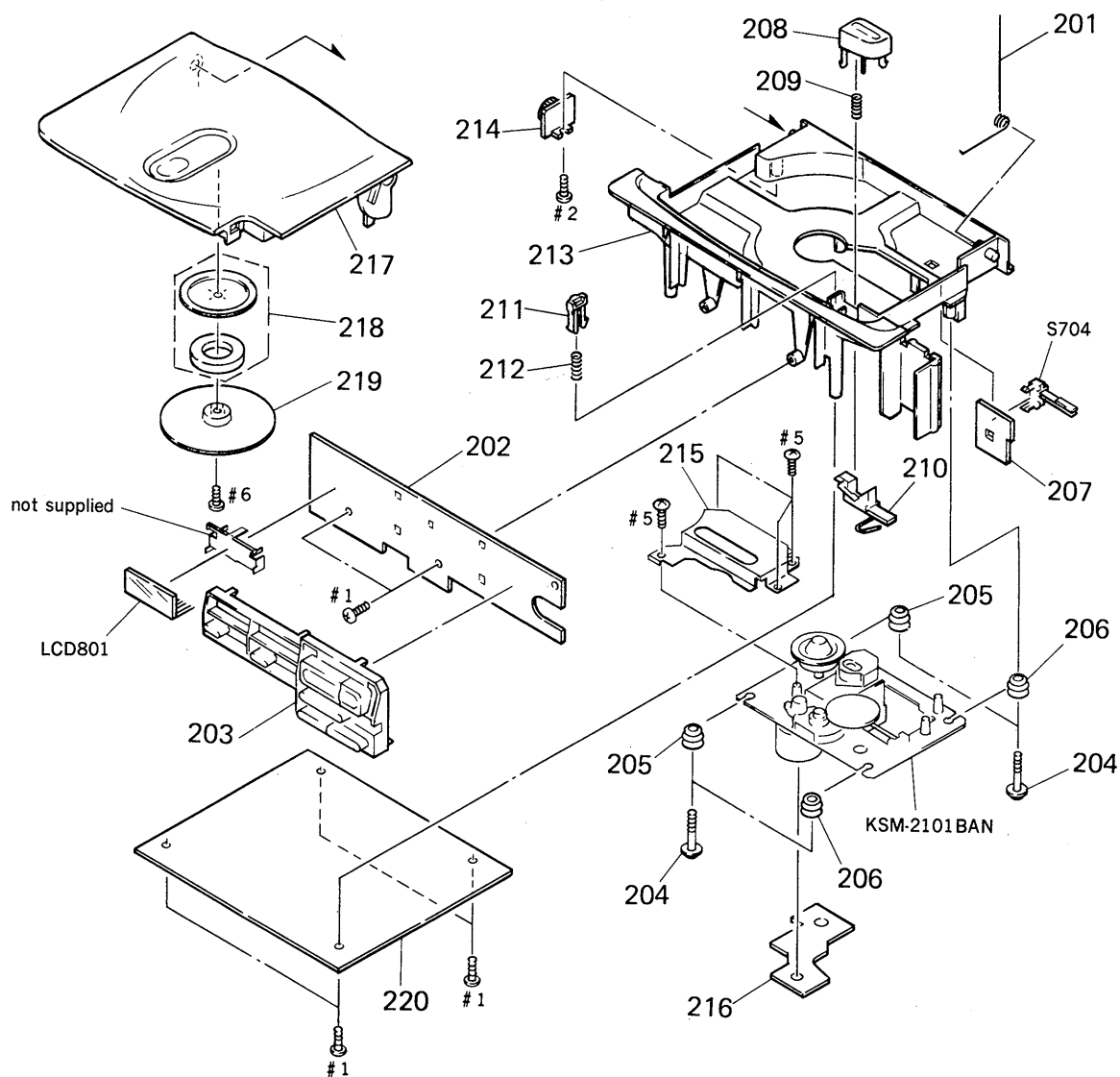


Ref. No.	Part No.	Description	Remark
151	3-374-323-01	BELT	
152	X-3365-411-1	FLY ASSY (N2)	
153	X-3363-913-1	FLY ASSY (R)	
154	3-374-321-01	BELT	
155	X-3363-917-1	LIMITER ASSY, FWD	
156	3-374-359-01	GEAR (SHUT-OFF), CAM	
157	3-344-737-11	SCREW (B1.4X6), TAPPING	
158	3-374-318-01	GEAR (A), DECELERATION	
159	3-683-454-01	WASHER, POLYETHYLENE	
* 160	3-374-316-01	LEVER (SHIT-OFF A)	
161	3-375-011-01	SPRING, COMPRESSION	
162	3-374-357-01	LEVER (SHUT-OFF C)	
163	3-374-311-01	SPRING (SHUT-OFF C), TORSION	
164	3-374-312-01	LEVER (SHUT-OFF B)	
165	3-374-313-01	SPRING (SHUT-OFF), TORSION	
166	3-374-307-01	SPRING (MUTUAL), TORSION	
* 167	3-374-317-01	REINFORCEMENT	
168	3-374-358-01	SLIDER (ERASING)	
169	3-374-314-01	LEVER (DIR B)	
* 170	3-374-315-01	SLIDER (CR)	

Ref. No.	Part No.	Description	Remark
171	3-374-306-01	SLIDER (MODE B)	
* 172	3-374-305-01	SLIDER (MODE A)	
173	3-374-309-01	SPRING (REC), TORSION	
174	3-374-308-01	SPRING (CONTROL), TORSION	
175	3-374-356-01	SLIDER (REC)	
176	3-374-355-01	SLIDER (FWD)	
177	3-374-354-01	SLIDER (REW)	
178	3-374-353-01	SLIDER (FF)	
179	3-374-352-01	SLIDER (PAUSE)	
180	3-374-351-01	SLIDER (STOP)	
* 181	3-374-348-01	SLIDER (FR)	
182	3-374-350-01	SLIDER (LOCK)	
* 183	3-374-349-01	SLIDER (SW)	
184	4-932-648-01	SPRING, COMPRESSION	
185	3-374-324-01	RING, RETAINING	
186	3-374-325-01	GEAR (B), DECELERATION	
187	3-374-304-01	LEVER (PAUSE ROCK)	
* 188	X-3363-918-1	CHASSIS ASSY, MECHANICAL	
189	3-374-310-01	SPRING (FWD), TORSION	
M301	A-3253-405-A	MOTOR ASSY (9F) (INCLUDING PULLEY, RV401)	

REVISED

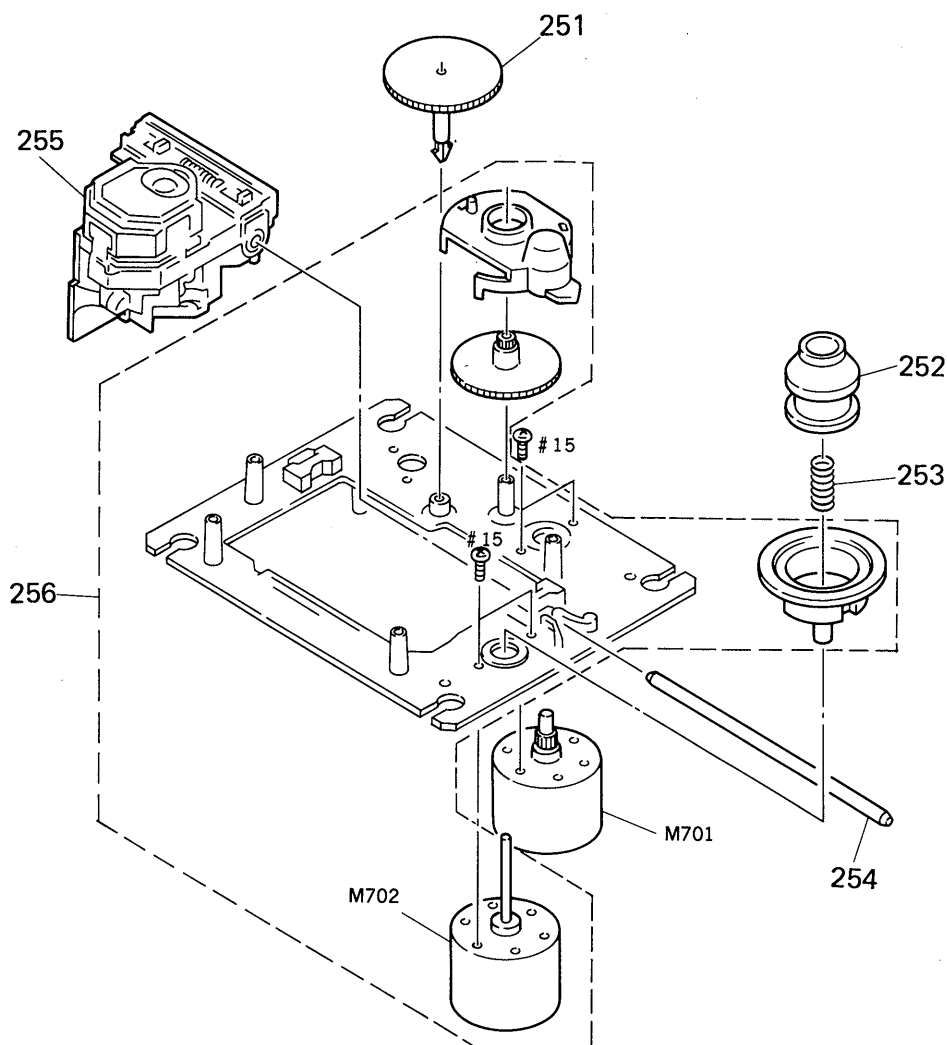
6-5. CD BLOCK SECTION



Ref. No.	Part No.	Description	Remark
201	3-372-185-01	SPRING, UP	
* 202	1-648-329-11	CD CONTROL BOARD	
203	3-372-213-01	BUTTON, CD	
204	4-931-373-01	SCREW, CD FITTING	
205	4-922-858-01	DAMPER	
206	4-922-858-11	DAMPER	
* 207	1-648-331-11	CD LEAF BOARD	
208	3-372-183-01	BUTTON (CD OPEN)	
209	3-372-207-01	SPRING, COMPRESSION	
210	3-372-182-01	LEVER (LOCK)	
211	3-372-184-01	LEVER, UP	

Ref. No.	Part No.	Description	Remark
212	3-372-206-01	SPRING, LEVER COIL	
* 213	3-372-194-01	CHASSIS, CD	
214	3-351-377-11	DAMPER	
215	4-928-936-01	COVER, CD	
* 216	1-648-330-11	CD MOTOR BOARD	
217	X-3366-304-1	LID SUB ASSY, CD	
218	1-452-531-11	MAGNET	
219	3-704-435-01	PLATE (M), CHUCK	
* 220	A-3264-246-A	CD MAIN BOARD, COMPLETE	
LCD801	1-808-930-11	DISPLAY PANEL, LIQUID CRYSTAL	
S704	1-570-013-11	SWITCH, LEAF (CD LID OPEN/CLOSE DET)	

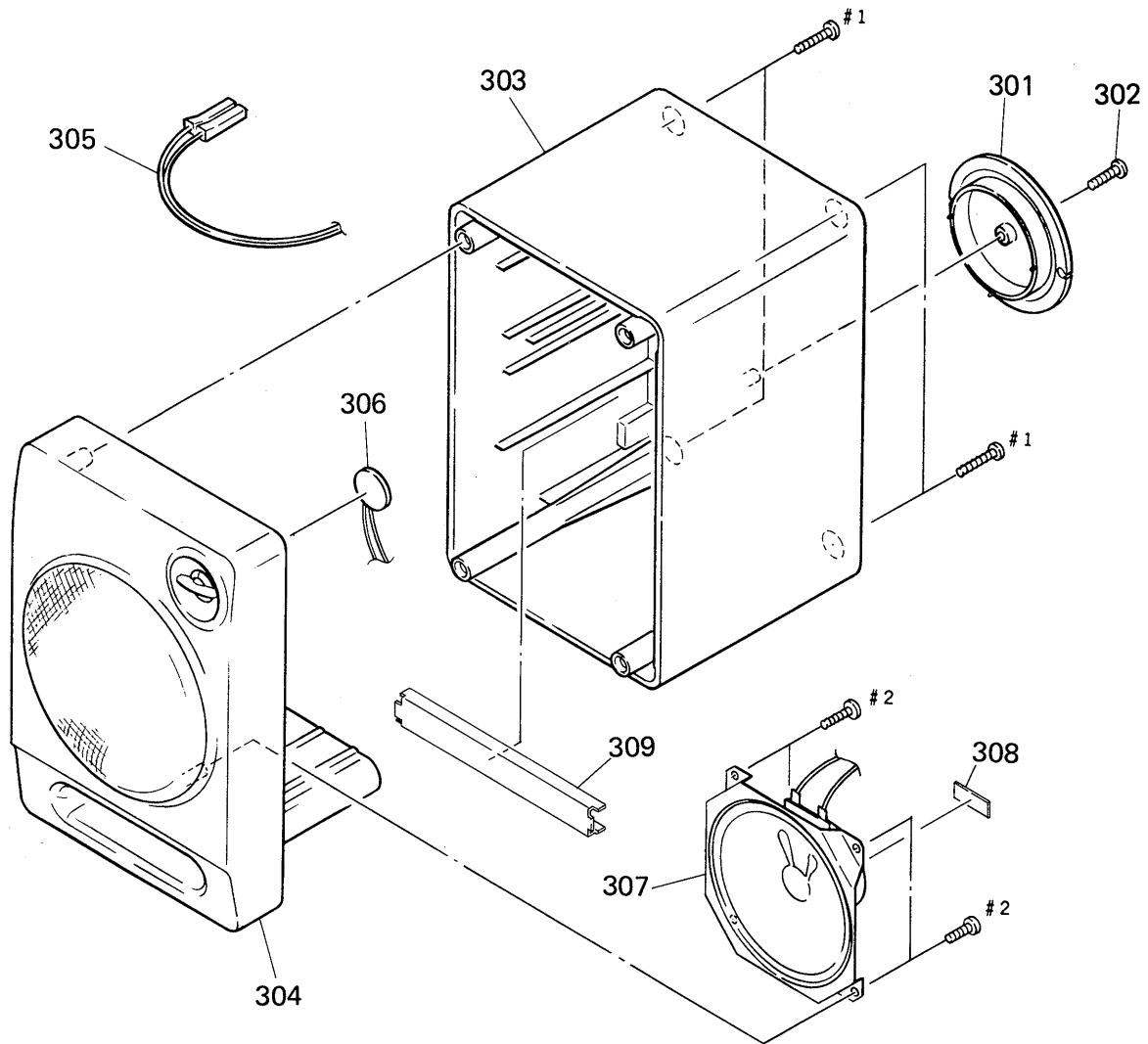
6-6. OPTICAL PICK-UP SECTION
(KSM-2101BAN)



The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
--	--

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
251	2-625-188-02	GEAR (A)		 255	8-848-137-11	DEVICE, OPTICAL KSS-210B	
252	2-625-186-01	RING (C), CENTER		256	X-2625-133-2	CHASSIS ASSY, TT (WITH M702 SPINDLE)	
253	2-625-191-01	SPRING, COMPRESSION		M701	X-2625-132-1	GEAR ASSY, MOTOR (SLED)	
254	4-917-565-01	SHAFT (K), SLED					

6-7. SPEAKER SECTION



Ref. No.	Part No.	Description	Remark
301	3-372-214-01	REEL, SPEAKER	
302	3-325-679-71	SCREW, TAPPING +BV 3X12	
303	3-372-197-01	SPEAKER (L) (REAR)	
303	3-372-199-01	SPEAKER (R) (REAR)	
304	X-3363-627-1	SPEAKER (L) SUB (FRONT) ASSY	
304	X-3363-628-1	SPEAKER (R) SUB (FRONT) ASSY	

Ref. No.	Part No.	Description	Remark
305	1-559-620-11	CORD (WITH CONNECTOR)	
306	1-529-058-11	BUZZER	
307	1-544-148-11	SPEAKER	
308	3-831-441-XX	CUSHION, SPEAKER	
* 309	3-383-789-01	BRACKET, SPEAKER	

SECTION 7 ELECTRICAL PARTS LIST

BATTERY

CD CONTROL

CD LEAF

CD MAIN

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example:
uA.: μ A.. uPA.: μ PA..
uPB.: μ PB.. uPC.: μ PC.. uPD.: μ PD..
- CAPACITORS
uF: μ F
- COILS
uH: μ H

When indicating parts by reference number, please include the board.

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
*	1-647-273-11	BATTERY BOARD *****	
*	1-562-683-11	CONTACT, SMALL MICRO (CN902)	
	3-379-748-01	SPRING (-)	
		< CONNECTOR >	
* CN902	1-562-680-11	CONNECTOR, SMALL MICRO 2P *****	
*	1-648-329-11	CD CONTROL BOARD *****	
		< CONNECTOR >	
* CN801	1-566-970-11	HOUSING, CONNECTOR (PC BOARD) 8P	
* CN802	1-568-451-11	HOUSING, CONNECTOR (PC BOARD) 10P	
* CN803	1-568-451-11	HOUSING, CONNECTOR (PC BOARD) 10P	
		< LIQUID CRYSTAL DISPLAY >	
LCD801	1-808-930-11	DISPLAY PANEL, LIQUID CRYSTAL < SWITCH >	
S801	1-572-199-11	SWITCH, KEY BOARD (PLAY $\triangleright$)	
S802	1-572-199-11	SWITCH, KEY BOARD (STOP $\blacksquare$)	
S803	1-572-199-11	SWITCH, KEY BOARD (AMS SEARCH $\ll$)	
S804	1-572-199-11	SWITCH, KEY BOARD (AMS SEARCH $\gg$)	
S805	1-572-199-11	SWITCH, KEY BOARD (PAUSE $\parallel$)	
S806	1-572-199-11	SWITCH, KEY BOARD (PLAY MODE)	
S807	1-572-199-11	SWITCH, KEY BOARD (REMAIN/ENTER) *****	
*	1-648-331-11	CD LEAF BOARD *****	
* CN708	1-565-480-11	CONNECTOR, BOARD TO BOARD 4P < SWITCH >	
S704	1-570-013-11	SWITCH, LEAF (CD LID OPEN/CLOSE DET) *****	

Ref. No.	Part No.	Description	Remark
*	A-3264-246-A	CD MAIN BOARD, COMPLETE *****	
		< CAPACITOR >	
C701	1-124-443-00	ELECT 100uF 20% 10V	
C702	1-124-034-51	ELECT 33uF 20% 16V	
C703	1-124-034-51	ELECT 33uF 20% 16V	
C704	1-136-165-00	FILM 0.1uF 5% 50V	
C705	1-136-165-00	FILM 0.1uF 5% 50V	
C707	1-124-261-00	ELECT 10uF 20% 50V	
C708	1-161-057-00	CERAMIC 0.033uF 10% 50V	
C709	1-124-925-11	ELECT 2.2uF 20% 100V	
C711	1-161-061-11	CERAMIC 0.068uF 10% 50V	
C712	1-124-126-00	ELECT 47uF 20% 10V	
C713	1-161-772-11	CERAMIC 0.1uF 10% 25V	
C714	1-162-215-31	CERAMIC 47PF 5% 50V	
C716	1-161-057-00	CERAMIC 0.033uF 10% 50V	
C717	1-124-126-00	ELECT 47uF 20% 10V	
C718	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C719	1-161-057-00	CERAMIC 0.033uF 10% 50V	
C720	1-161-375-00	CERAMIC 0.0022uF 20% 50V	
C721	1-161-494-00	CERAMIC 0.022uF 25V	
C722	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C723	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C724	1-161-057-00	CERAMIC 0.033uF 10% 50V	
C725	1-136-165-00	FILM 0.1uF 5% 50V	
C726	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C727	1-161-021-11	CERAMIC 0.047uF 10% 25V	
C728	1-161-374-11	CERAMIC 0.0015uF 20% 50V	
C729	1-124-902-00	ELECT 0.47uF 20% 50V	
C730	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C731	1-162-195-31	CERAMIC 4.7PF 10% 50V	
C732	1-162-195-31	CERAMIC 4.7PF 10% 50V	
C733	1-124-902-00	ELECT 0.47uF 20% 50V	
C734	1-124-907-11	ELECT 10uF 20% 50V	
C735	1-124-034-51	ELECT 33uF 20% 16V	
C736	1-124-927-11	ELECT 4.7uF 20% 100V	
C737	1-161-375-00	CERAMIC 0.0022uF 20% 50V	
C745	1-124-034-51	ELECT 33uF 20% 16V	

Ref. No.	Part No.	Description	Remark
C746	1-124-927-11	ELECT	4.7uF 20% 100V
C747	1-161-375-00	CERAMIC	0.0022uF 20% 50V
C753	1-124-463-00	ELECT	0.1uF 20% 50V
C756	1-162-294-31	CERAMIC	0.001uF 10% 50V
C757	1-161-329-00	CERAMIC	0.0068uF 20% 16V
C758	1-161-021-11	CERAMIC	0.047uF 10% 25V
C759	1-161-772-11	CERAMIC	0.1uF 10% 25V
C760	1-161-772-11	CERAMIC	0.1uF 10% 25V
C761	1-124-442-00	ELECT	330uF 20% 6.3V
C762	1-124-473-11	ELECT	1000uF 20% 10V
C769	1-126-177-11	ELECT	100uF 20% 10V
C770	1-124-126-00	ELECT	47uF 20% 10V
C771	1-161-056-00	CERAMIC	0.027uF 10% 25V
C772	1-162-306-11	CERAMIC	0.01uF 20% 16V
C773	1-161-494-00	CERAMIC	0.022uF 25V
C774	1-161-494-00	CERAMIC	0.022uF 25V
C775	1-161-039-00	CERAMIC	0.001uF 10% 50V
C776	1-161-039-00	CERAMIC	0.001uF 10% 50V
C791-793	1-162-306-11	CERAMIC	0.01uF 20% 16V
C794	1-162-294-31	CERAMIC	0.001uF 10% 50V
C801	1-162-282-31	CERAMIC	100PF 10% 50V
C803	1-124-902-00	ELECT	0.47uF 20% 50V
C804	1-124-034-51	ELECT	33uF 20% 16V
C811	1-162-282-31	CERAMIC	100PF 10% 50V

< CONNECTOR >

* CN701	1-564-710-11	PIN, CONNECTOR (SMALL TYPE) 8P
* CN702	1-564-710-11	PIN, CONNECTOR (SMALL TYPE) 8P
* CN703	1-506-988-11	PIN, CONNECTOR (PC BOARD) 6P
* CN704	1-566-005-11	PIN, CONNECTOR (PC BOARD) 8P
* CN707	1-506-509-11	PIN, CONNECTOR 4P
* CN709	1-566-973-11	PIN, CONNECTOR (PC BOARD) 8P
* CN710	1-568-455-11	PIN, CONNECTOR (PC BOARD) 10P
* CN711	1-568-455-11	PIN, CONNECTOR (PC BOARD) 10P

< DIODE >

D701	8-719-911-19	DIODE 1SS119
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< IC >

IC701	8-752-039-03	IC CXA1421M
IC702	8-752-058-77	IC CXA1372AQ
IC703	8-752-352-93	IC CXD2500BQ
IC704	8-759-148-30	IC uPD6376
IC705	8-759-503-98	IC SM5840DS
IC706	8-759-518-59	IC BA6296FP
IC801	8-752-830-87	IC CXP5084H-636Q
IC802	8-759-971-11	IC PST529D

Ref. No.	Part No.	Description	Remark
		< COIL >	
L702	1-410-335-11	INDUCTOR	150uH
		< TRANSISTOR >	
Q701	8-729-801-84	TRANSISTOR	2SB1013-4
Q702	8-729-900-63	TRANSISTOR	DTA124ES
Q703	8-729-904-39	TRANSISTOR	DTC114TS
Q704	8-729-902-80	TRANSISTOR	DTA114YS
Q731	8-729-904-39	TRANSISTOR	DTC114TS
Q741	8-729-904-39	TRANSISTOR	DTC114TS
Q801	8-729-806-30	TRANSISTOR	2SC4048
		< RESISTOR >	
R700	1-247-806-11	CARBON	91 5% 1/4W
R701	1-249-397-11	CARBON	22 5% 1/4W
R702	1-249-433-11	CARBON	22K 5% 1/4W
R703	1-249-431-11	CARBON	15K 5% 1/4W
R704	1-249-431-11	CARBON	15K 5% 1/4W
R705	1-249-441-11	CARBON	100K 5% 1/4W
R706	1-249-435-11	CARBON	33K 5% 1/4W
R707	1-247-885-00	CARBON	180K 5% 1/4W
R708	1-247-862-11	CARBON	20K 5% 1/4W
R709	1-249-435-11	CARBON	33K 5% 1/4W
R710	1-249-417-11	CARBON	1K 5% 1/4W
R711	1-247-896-11	CARBON	510K 5% 1/4W
R712	1-247-883-00	CARBON	150K 5% 1/4W
R713	1-249-429-11	CARBON	10K 5% 1/4W
R714	1-249-417-11	CARBON	1K 5% 1/4W
R715	1-247-887-00	CARBON	220K 5% 1/4W
R716	1-249-429-11	CARBON	10K 5% 1/4W
R717	1-249-423-11	CARBON	3.3K 5% 1/4W
R718	1-247-881-00	CARBON	120K 5% 1/4W
R719	1-249-423-11	CARBON	3.3K 5% 1/4W
R720	1-249-429-11	CARBON	10K 5% 1/4W
R721	1-249-441-11	CARBON	100K 5% 1/4W
R724	1-249-417-11	CARBON	1K 5% 1/4W
R725	1-249-429-11	CARBON	10K 5% 1/4W
R726	1-249-417-11	CARBON	1K 5% 1/4W
R727	1-249-441-11	CARBON	100K 5% 1/4W
R728	1-249-437-11	CARBON	47K 5% 1/4W
R729	1-249-417-11	CARBON	1K 5% 1/4W
R730	1-249-409-11	CARBON	220 5% 1/4W
R731	1-249-417-11	CARBON	1K 5% 1/4W
R737	1-249-440-11	CARBON	82K 5% 1/4W
R741	1-249-417-11	CARBON	1K 5% 1/4W
R760	1-249-428-11	CARBON	8.2K 5% 1/4W
R761	1-249-437-11	CARBON	47K 5% 1/4W
R762	1-249-430-11	CARBON	12K 5% 1/4W

CD MAIN

CD MOTOR

H. P

HEAD RELAY

LEAF

Ref.No.	Part No.	Description	Remark		
R764	1-249-435-11	CARBON	33K	5%	1/4W
R766	1-249-437-11	CARBON	47K	5%	1/4W
R767	1-249-426-11	CARBON	5.6K	5%	1/4W
R768	1-249-405-11	CARBON	100	5%	1/4W
R769	1-249-395-11	CARBON	15	5%	1/4W
R771	1-249-425-11	CARBON	4.7K	5%	1/4W
R781	1-249-405-11	CARBON	100	5%	1/4W
R801	1-249-405-11	CARBON	100	5%	1/4W
R802	1-249-405-11	CARBON	100	5%	1/4W
R804-806	1-249-435-11	CARBON	33K	5%	1/4W
R809	1-249-437-11	CARBON	47K	5%	1/4W
R811	1-249-441-11	CARBON	100K	5%	1/4W
R812	1-249-433-11	CARBON	22K	5%	1/4W
R813	1-249-437-11	CARBON	47K	5%	1/4W
R814	1-249-437-11	CARBON	47K	5%	1/4W
< VARIABLE RESISTOR >					
RV701	1-230-497-11	RES, ADJ, CARBON	22K		
RV702	1-230-497-11	RES, ADJ, CARBON	22K		
RV703	1-230-497-11	RES, ADJ, CARBON	22K		
RV704	1-230-497-11	RES, ADJ, CARBON	22K		
< VIBRATOR >					
X801	1-567-775-11	VIBRATOR, CERAMIC	(4.19MHz)		
XF701	1-579-345-11	VIBRATOR, CERAMIC	(16.9344MHz)		

*	1-648-330-11	CD MOTOR BOARD			

< CONNECTOR >					
* CN706	1-566-003-11	PIN, CONNECTOR (PC BOARD)	6P		
< SWITCH >					
S703	1-570-822-21	SWITCH, LEAF (LIMIT IN)			

*	1-647-271-11	H. P BOARD			

< CAPACITOR >					
C301	1-124-463-00	ELECT	0.1uF	20%	50V
C302	1-124-903-11	ELECT	1uF	20%	50V
C303	1-124-442-00	ELECT	330uF	20%	6.3V
C304	1-162-306-11	CERAMIC	0.01uF	20%	16V
C333	1-162-282-31	CERAMIC	100PF	10%	50V
C334	1-162-282-31	CERAMIC	100PF	10%	50V
C336	1-162-306-11	CERAMIC	0.01uF	20%	16V

Ref.No.	Part No.	Description	Remark		
< JACK >					
J301	1-563-330-11	JACK (MIX MIC)			
J302	1-566-891-11	JACK (PHONES)			
< COIL >					
L301	1-410-501-11	INDUCTOR	2.2uH		
< TRANSISTOR >					
Q301	8-729-119-78	TRANSISTOR	2SC2785-HFE		
Q302	8-729-119-78	TRANSISTOR	2SC2785-HFE		
< RESISTOR >					
R110	1-249-404-00	CARBON	82	5%	1/4W
R210	1-249-404-00	CARBON	82	5%	1/4W
R301	1-249-417-11	CARBON	1K	5%	1/4W
R302	1-247-898-11	CARBON	620K	5%	1/4W
R303	1-249-405-11	CARBON	100	5%	1/4W
R304	1-249-422-11	CARBON	2.7K	5%	1/4W
R305	1-249-421-11	CARBON	2.2K	5%	1/4W
R309	1-249-409-11	CARBON	220	5%	1/4W

*	1-645-055-21	HEAD RELAY BOARD			

*	1-566-001-11	PIN, CONNECTOR (PC BOARD)	4P		
*	1-750-166-11	HOUSING, CONNECTOR	5P		
	3-309-597-81	SCREW (1.4), TAPPING			
	3-328-432-01	WASHER, STOPPER			
	3-344-737-11	SCREW (B1.4X6), TAPPING			
	3-374-342-01	SPRING (HEAD), TORSION			
	3-374-344-01	GUIDE, ERASE HEAD			
	3-374-345-01	SPRING, TENSION			
*	3-374-370-01	SLIDER (HD)			
*	3-381-657-01	CHASSIS, HEAD			
*	3-381-658-02	GEAR (BASE), HEAD			
	3-381-660-01	LEVER (FAN-SHAPED)			
	3-386-829-01	SPRING, TENSION			
	7-621-255-65	SCREW +PTT 2X10 (S)			

*	1-647-272-11	LEAF BOARD			

< CONNECTOR >					
* CN601	1-566-779-11	PIN, CONNECTOR (PC BOARD)	4P		
* CN602	1-566-214-11	PIN, CONNECTOR (PC BOARD)	2P		
* CN603	1-566-214-11	PIN, CONNECTOR (PC BOARD)	2P		

Ref. No.	Part No.	Description	Remark		
< SWITCH >					
S601	1-571-330-21	SWITCH, LEAF (MD POWER)			
S602	1-571-890-11	SWITCH, LEAF (PAUSE)			

*	A-3264-250-A	MAIN BOARD, COMPLETE			

*	1-506-942-11	TERMINAL, SOLDERLESS (CN304)			
*	1-562-683-11	CONTACT, SMALL MICRO (CN304)			
*	1-564-831-11	CONTACT, CONNECTOR (CN303)			
*	1-564-831-11	CONTACT, CONNECTOR (CN306)			
	3-322-317-01	LEVER, REC			
	3-372-178-01	GEAR, TUNING CAPACITOR			
	3-372-188-01	HOLDER (REC)			
	3-372-212-01	KNOB, BAND			
	7-621-770-87	SCREW +B 2.6X5			
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3 (IC303)			
< CAPACITOR >					
C1	1-102-960-00	CERAMIC	24PF	5%	50V
C2	1-102-960-00	CERAMIC	24PF	5%	50V
C3	1-162-191-31	CERAMIC	2.2PF	10%	50V
C4	1-162-196-31	CERAMIC	5.6PF	10%	50V
C5	1-124-034-51	ELECT	33uF	20%	16V
C6	1-161-051-00	CERAMIC	0.01uF	10%	50V
C7	1-162-306-11	CERAMIC	0.01uF	20%	16V
C8	1-162-187-31	CERAMIC	1PF	20%	50V
C9	1-162-287-31	CERAMIC	270PF	10%	50V
C10	1-124-477-11	ELECT	47uF	20%	25V
C11	1-124-925-11	ELECT	2.2uF	20%	100V
C12	1-124-474-11	ELECT	47uF	20%	16V
C13	1-161-051-00	CERAMIC	0.01uF	10%	50V
C14	1-161-051-00	CERAMIC	0.01uF	10%	50V
C15	1-124-903-11	ELECT	1uF	20%	50V
C16	1-124-927-11	ELECT	4.7uF	20%	100V
C17	1-161-053-00	CERAMIC	0.015uF	10%	50V
C18	1-161-053-00	CERAMIC	0.015uF	10%	50V
C19	1-124-903-11	ELECT	1uF	20%	50V
C20	1-124-902-00	ELECT	0.47uF	20%	50V
C21	1-124-927-11	ELECT	4.7uF	20%	100V
C22	1-124-443-00	ELECT	100uF	20%	10V
C23	1-124-902-00	ELECT	0.47uF	20%	50V
C24	1-124-902-00	ELECT	0.47uF	20%	50V
C51	1-162-282-31	CERAMIC	100PF	10%	50V
C52	1-162-282-31	CERAMIC	100PF	10%	50V
C53	1-162-191-31	CERAMIC	2.2PF	10%	50V
C101	1-124-927-11	ELECT	4.7uF	20%	100V
C102	1-162-282-31	CERAMIC	100PF	10%	50V
C103	1-162-293-31	CERAMIC	820PF	10%	50V

Ref. No.	Part No.	Description	Remark		
C104	1-124-443-00	ELECT	100uF	20%	10V
C105	1-124-927-11	ELECT	4.7uF	20%	100V
C106	1-124-903-11	ELECT	1uF	20%	50V
C107	1-102-122-00	CERAMIC	0.0027uF	10%	50V
C108	1-124-903-11	ELECT	1uF	20%	50V
C109	1-124-927-11	ELECT	4.7uF	20%	100V
C110	1-124-925-11	ELECT	2.2uF	20%	100V
C111	1-161-375-00	CERAMIC	0.0022uF	20%	50V
C112	1-124-443-00	ELECT	100uF	20%	10V
C113	1-124-443-00	ELECT	100uF	20%	10V
C114	1-124-473-11	ELECT	1000uF	20%	10V
C115	1-136-169-00	FILM	0.22uF	5%	50V
C116	1-162-282-31	CERAMIC	100PF	10%	50V
C117	1-162-294-31	CERAMIC	0.001uF	10%	50V
C201	1-124-927-11	ELECT	4.7uF	20%	100V
C202	1-162-282-31	CERAMIC	100PF	10%	50V
C203	1-162-293-31	CERAMIC	820PF	10%	50V
C204	1-124-443-00	ELECT	100uF	20%	10V
C205	1-124-927-11	ELECT	4.7uF	20%	100V
C206	1-124-903-11	ELECT	1uF	20%	50V
C207	1-102-122-00	CERAMIC	0.0027uF	10%	50V
C208	1-124-903-11	ELECT	1uF	20%	50V
C209	1-124-927-11	ELECT	4.7uF	20%	100V
C210	1-124-925-11	ELECT	2.2uF	20%	100V
C211	1-161-375-00	CERAMIC	0.0022uF	20%	50V
C212	1-124-443-00	ELECT	100uF	20%	10V
C213	1-124-443-00	ELECT	100uF	20%	10V
C214	1-124-473-11	ELECT	1000uF	20%	10V
C215	1-136-169-00	FILM	0.22uF	5%	50V
C216	1-162-282-31	CERAMIC	100PF	10%	50V
C217	1-162-294-31	CERAMIC	0.001uF	10%	50V
C306	1-130-470-00	MYLAR	820PF	5%	50V
C307	1-130-473-00	MYLAR	0.0015uF	5%	50V
C308	1-130-482-00	MYLAR	0.0082uF	5%	50V
C309	1-130-479-00	MYLAR	0.0047uF	5%	50V
C310	1-126-120-11	ELECT	220uF	20%	25V
C311	1-124-927-11	ELECT	4.7uF	20%	100V
C312	1-124-916-11	ELECT	22uF	20%	63V
C313	1-124-120-11	ELECT	220uF	20%	25V
C314	1-123-382-00	ELECT	3.3uF	20%	100V
C315	1-162-306-11	CERAMIC	0.01uF	20%	16V
C316	1-162-306-11	CERAMIC	0.01uF	20%	16V
C317-321	1-124-120-11	ELECT	220uF	20%	25V
C322	1-124-907-11	ELECT	10uF	20%	50V
C323	1-124-480-11	ELECT	470uF	20%	25V
C324	1-124-925-11	ELECT	2.2uF	20%	100V
C325	1-124-925-11	ELECT	2.2uF	20%	100V
C326	1-124-927-11	ELECT	4.7uF	20%	100V

Ref. No.	Part No.	Description	Remark
C327	1-124-443-00	ELECT 100uF	20% 10V
C328	1-124-474-11	ELECT 47uF	20% 16V
C329-332			
	1-162-306-11	CERAMIC 0.01uF	20% 16V
C335	1-124-034-51	ELECT 33uF	20% 16V
C338	1-162-306-11	CERAMIC 0.01uF	20% 16V

< FILTER >

CF1-3

1-577-599-81 FILTER, CERAMIC

< CONNECTOR >

* CN301	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P
CN303	1-563-741-11	HOUSING, SOCKET (TRANSLATION) 2P
* CN307	1-564-599-11	PIN, CONNECTOR 8P

< ENCAPSULATED COMPONENT >

CP1 1-236-079-11 ENCAPSULATED COMPONENT

< VARIABLE CAPACITOR >

CT1	1-151-624-11	CAP, VARIABLE (TUNING)
CV1		

< DIODE >

D1-4

	8-719-911-19	DIODE 1SS119
D5	8-719-304-78	LED SEL2210R-D (FM ST)
D301	8-719-109-97	DIODE RD6. 8ES-B2
D302	8-719-911-19	DIODE 1SS119
D303	8-719-911-19	DIODE 1SS119
D305	8-719-304-78	LED SEL2210R-D (OPR/BATT)
D306	8-719-109-89	DIODE RD5. 6ES-B2
D307	8-719-911-19	DIODE 1SS119
D308	8-719-911-19	DIODE 1SS119

< FILTER >

FL1 1-236-022-11 FILTER, BAND PASS

< IC >

IC1	8-752-050-20	IC CXA1238S
IC301	8-752-055-84	IC CXA1352AS
IC302	8-759-942-24	IC BA3312N
IC303	8-759-820-22	IC LA4597

< JACK >

J303 1-537-114-11 TERMINAL BOARD (SPEAKER OUTPUT)

Ref. No.	Part No.	Description	Remark
		< COIL >	
* L1	1-428-029-11	COIL, AIR-CORE	
* L2	1-422-354-11	COIL, AIR-CORE	
L3	1-402-553-11	ANTENNA, FERRITE-ROD (MW)	
L4	1-408-417-00	INDUCTOR 47uH	
L302	1-410-521-11	INDUCTOR 100uH	

< TRANSISTOR >

Q5	8-729-900-85	TRANSISTOR DTC144WS
Q6	8-729-900-85	TRANSISTOR DTC144WS
Q101	8-729-806-30	TRANSISTOR 2SC4048
Q102	8-729-806-30	TRANSISTOR 2SC4048
Q201	8-729-806-30	TRANSISTOR 2SC4048
Q202	8-729-806-30	TRANSISTOR 2SC4048
Q303	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q304	8-729-806-30	TRANSISTOR 2SC4048
Q305	8-729-905-67	TRANSISTOR 2SD1944-K
Q308	8-729-905-67	TRANSISTOR 2SD1944-K

< RESISTOR >

R1	1-249-441-11	CARBON 100K 5% 1/4W
R2	1-249-421-11	CARBON 2.2K 5% 1/4W
R3	1-249-415-11	CARBON 680 5% 1/4W
R4	1-249-407-11	CARBON 150 5% 1/4W
R5	1-249-401-11	CARBON 47 5% 1/4W
R6	1-249-427-11	CARBON 6.8K 5% 1/4W
R7	1-249-427-11	CARBON 6.8K 5% 1/4W
R8	1-247-887-00	CARBON 220K 5% 1/4W
R9	1-247-887-00	CARBON 220K 5% 1/4W
R10	1-249-421-11	CARBON 2.2K 5% 1/4W
R11	1-249-429-11	CARBON 10K 5% 1/4W
R12	1-249-415-11	CARBON 680 5% 1/4W
R14	1-247-850-11	CARBON 6.2K 5% 1/4W
R16	1-249-423-11	CARBON 3.3K 5% 1/4W
R50	1-249-425-11	CARBON 4.7K 5% 1/4W
R51	1-249-425-11	CARBON 4.7K 5% 1/4W
R101	1-249-435-11	CARBON 33K 5% 1/4W
R102	1-249-411-11	CARBON 330 5% 1/4W
R103	1-249-409-11	CARBON 220 5% 1/4W
R104	1-249-424-11	CARBON 3.9K 5% 1/4W
R105	1-249-406-11	CARBON 120 5% 1/4W
R107	1-247-850-11	CARBON 6.2K 5% 1/4W
R108	1-249-429-11	CARBON 10K 5% 1/4W
R109	1-249-425-11	CARBON 4.7K 5% 1/4W
R113	1-247-838-00	CARBON 2K 5% 1/4W
R114	1-247-838-00	CARBON 2K 5% 1/4W
R115	1-247-862-11	CARBON 20K 5% 1/4W
R116	1-247-842-11	CARBON 3K 5% 1/4W
R117	1-249-435-11	CARBON 33K 5% 1/4W

MAIN

POWER

RELAY (H. M) 1

RETAINER

Ref. No.	Part No.	Description	Remark		
R118	1-249-431-11	CARBON	15K	5%	1/4W
R119	1-247-860-11	CARBON	16K	5%	1/4W
R120	1-249-405-11	CARBON	100	5%	1/4W
R201	1-249-435-11	CARBON	33K	5%	1/4W
R202	1-249-411-11	CARBON	330	5%	1/4W
R203	1-249-409-11	CARBON	220	5%	1/4W
R204	1-249-424-11	CARBON	3.9K	5%	1/4W
R205	1-249-406-11	CARBON	120	5%	1/4W
R207	1-247-850-11	CARBON	6.2K	5%	1/4W
R208	1-249-429-11	CARBON	10K	5%	1/4W
R209	1-249-425-11	CARBON	4.7K	5%	1/4W
R213	1-247-838-00	CARBON	2K	5%	1/4W
R214	1-247-838-00	CARBON	2K	5%	1/4W
R215	1-247-862-11	CARBON	20K	5%	1/4W
R216	1-247-842-11	CARBON	3K	5%	1/4W
R217	1-249-435-11	CARBON	33K	5%	1/4W
R218	1-249-431-11	CARBON	15K	5%	1/4W
R219	1-247-860-11	CARBON	16K	5%	1/4W
R220	1-249-405-11	CARBON	100	5%	1/4W
R306	1-249-389-11	CARBON	4.7	5%	1/4W
R307	1-249-435-11	CARBON	33K	5%	1/4W
R308	1-249-407-11	CARBON	150	5%	1/4W
△R310	1-212-938-00	FUSIBLE	1.5	5%	1/2W F
R311	1-249-407-11	CARBON	150	5%	1/4W
△R312	1-217-639-00	FUSIBLE	2.2	5%	1/4W F
R313	1-247-884-11	CARBON	160K	5%	1/4W
R315	1-249-418-11	CARBON	1.2K	5%	1/4W
R316	1-249-412-11	CARBON	390	5%	1/4W
R317	1-249-401-11	CARBON	47	5%	1/4W
R318	1-249-418-11	CARBON	1.2K	5%	1/4W
R319	1-249-425-11	CARBON	4.7K	5%	1/4W
△R320	1-217-639-00	FUSIBLE	2.2	5%	1/4W F
R322	1-247-903-91	CARBON	1M	5%	1/4W
R323	1-249-435-11	CARBON	33K	5%	1/4W
△R324	1-249-381-11	CARBON	1	5%	1/4W F
R325	1-249-401-11	CARBON	47	5%	1/4W
R326	1-249-429-11	CARBON	10K	5%	1/4W
R327	1-249-399-11	CARBON	33	5%	1/4W
R328	1-249-413-11	CARBON	470	5%	1/4W
R329	1-249-423-11	CARBON	3.3K	5%	1/4W
R330	1-249-425-11	CARBON	4.7K	5%	1/4W
R331	1-249-418-11	CARBON	1.2K	5%	1/4W
R332	1-249-423-11	CARBON	3.3K	5%	1/4W
R401	1-249-431-11	CARBON	15K	5%	1/4W
< VARIABLE RESISTOR >					
RV1	1-238-017-11	RES, ADJ, CARBON 22K			
RV301	1-241-643-11	RES, VAR, CARBON 50K (100Hz)			
RV302	1-241-643-11	RES, VAR, CARBON 50K (1kHz)			

Ref. No.	Part No.	Description	Remark		
RV303	1-241-643-11	RES, VAR, CARBON 50K (10kHz)			
RV304	1-241-643-11	RES, VAR, CARBON 50K (BALANCE)			
RV305	1-241-642-11	RES, VAR, CARBON 50K (VOLUME)			
< SWITCH >					
S1	1-692-252-11	SWITCH, LEVER SLIDE (BAND)			
S301	1-570-916-11	SWITCH, SLIDE (REC/PB)			
S302	1-572-914-11	SWITCH, LEVER SLIDE (FUNCTION)			
S303	1-571-307-11	SWITCH, SLIDE (ISS)			
< TRANSFORMER >					
T1	1-406-040-00	COIL (OSC)			
T301	1-433-332-11	OSCILLATION TRANSFORMER, BIAS			

*	1-647-270-11	POWER BOARD			

	1-533-233-11	HOLDER, FUSE			
< CAPACITOR >					
C901-904					
	1-101-005-00	CERAMIC	22000PF		50V
C905	1-124-898-11	ELECT	4700uF	20%	16V
< CONNECTOR >					
* CN901	1-564-778-11	PLUG, CONNECTOR (2.5MM) 4P			
CN902	1-564-777-11	PLUG, CONNECTOR (2.5MM) 2P			
< DIODE >					
D901	8-719-500-55	DIODE D3SBA10			
< AC INLET >					
△J901	1-540-009-11	INLET, AC (AC IN ~)			
< TRANSFORMER >					
△T902	1-424-150-11	TRANSFORMER, LINE FILTER			

*	1-647-274-11	REALY (H.M) 1 BOARD			

< CONNECTOR >					
* CN311	1-565-484-11	CONNECTOR, BOARD TO BOARD 8P			

*	1-647-277-11	RETAINER BOARD			

The components identified by mark △ or dotted line with mark. △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
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MISCELLANEOUS

218	1-452-531-11	MAGNET	
△255	8-848-137-11	DEVICE, OPTICAL KSS-210B	
305	1-559-620-11	CORD (WITH CONNECTOR)	
306	1-529-058-11	BUZZER	
307	1-544-148-11	SPEAKER	
ANT1	1-501-383-21	ANTENNA, TELESCOPIC	
△F901	1-532-970-11	FUSE, GLASS TUBE (3A/125V)	
HE301	1-543-719-11	HEAD, MAGNETIC (ERASE)	
HRP301	1-500-013-11	HEAD, MAGNETIC (RECORD/PLAYBACK)	
M301	A-3253-405-A	MOTOR ASSY (9F) (INCLUDING PULLEY, RV401)	
M701	X-2625-132-1	GEAR ASSY, MOTOR (SLED)	
S603	1-571-348-11	SWITCH, LEAF (DIR)	
△T901	1-423-548-11	TRANSFORMER, POWER	

ACCESSORIES & PACKING MATERIALS

△	1-557-287-11	CORD, POWER (Canadian)	
△	1-696-064-21	CORD, POWER (POLARIZED) (US)	
*	3-373-802-01	CUSHION (TOP)	
*	3-373-803-01	CUSHION (CENTER & BOTTOM)	
*	3-387-351-01	INDIVIDUAL CARTON	
	3-756-611-21	MANUAL, INSTRUCTION (ENGLISH)	
	3-756-611-31	MANUAL, INSTRUCTION (FRENCH) (Canadian)	

HARDWARE LIST

#1	7-685-648-79	SCREW, TAPPING +BV 3X12
#2	7-685-647-79	SCREW +BVTP 3X10 TYPE2 SLIT
#3	7-621-770-87	SCREW +B 2.6X5
#4	7-682-549-04	SCREW +B 3X10
#5	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT
#6	7-621-772-10	SCREW +B 2X4
#7	7-685-132-19	+ PTPWH (2.6X5)
#8	7-682-648-09	SCREW +PWH 3X8
#9	7-621-775-20	SCREW +B 2.6X5
#10	7-685-133-19	SCREW +P 2.6X6 TYPE2
#11	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT
#12	7-621-255-65	SCREW +PTT 2X10 (S)
#13	7-685-152-19	SCREW +BTP 3X25 TYPE2 N-S
#14	7-685-651-79	SCREW +BVTP 3X20 TYPE2
#15	7-621-255-15	SCREW +P 2X3
#16	7-685-547-19	SCREW +BTP 3X10 TYPE2 N-S

The components identified by mark △ or dotted line with mark. △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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